ODONTOGLOSSUM PESCATOREI (*see page* 364.)

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THE ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S.

VOLUME XXI.

1913

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MISSOURI BOTANICAL GARDEN 1889

TO

SIR FREDERICK W. MOORE, M.A., A.L.S.,

KEEPER OF THE

ROYAL BOTANIC GARDEN, GLASNEVIN,

ONE OF OUR MOST ENTHUSIASTIC

AND

MOST SUCCESSFUL CULTIVATORS,

THIS TWENTY-FIRST VOLUME OF THE

"ORCHID REVIEW"

IS CORDIALLY DEDICATED.

Kew,
December, 1913.

THE ORCHID REVIEW.

VOL. XXI.] *JANUARY*, 1913. [No. 241.

THE ORCHID REVIEW.

WITH the last issue the *Orchid Review* completed its twentieth volume, and we have to thank numerous friends and readers for kindly congratulations and appreciation of the work, with good wishes for the future. Twenty years is a long period in the history of Orchidology, but the events that have marked its progress have been recorded as fully and faithfully as space and circumstances permitted, and the existence of a wide circle of readers, both at home and abroad, including a good number from the commencement, affords evidence that the work has been appreciated. In this connection it may be interesting to repeat the original announcement:—

"OUR PROGRAMME.

"The *Orchid Review* has been established to supply a want which we believe has long been felt among amateurs of Orchids, namely a journal devoted to their special interests.

"The cultivation of Orchids has become a most important, and to some extent also, a special branch of modern horticulture. The number of people and the amount of capital employed directly or indirectly in it is very large. Already the subject has a literature of its own, though too scattered to be readily accessible, and anything tending to concentrate it would confer a real boon upon those interested in the subject.

"In this belief we have decided to establish a monthly repertorium of information on every important branch of Orchidology, and to present it to the reader in a form suitable both for present use and future reference. We believe there is room for such a publication, without unduly interfering with the scope of the existing horticultural press, and we look with confidence for such support as shall enable us to prosecute our labours with success.

"The following are among the subjects to which our attention will be specially devoted:—

"Descriptions of new species of Orchids, with which our collections are constantly being enriched, will be an important feature of the *Review*, and some of the more striking of these will be figured, as circumstances permit.

"Hybrid Orchids will receive due attention. The importance of recording the origin and parentage of the members of this ever-increasing group will

be universally recognised, both for its own sake, and because of the light it throws on the occurrence of hybrids in a wild state.

"Notices of interesting collections will constantly be found in our columns, and will doubtless prove of interest to a wide circle of readers. The rich Burford collection has been selected for the commencement of the series.

"Special attention will be devoted to the cultural department, for which seasonable articles will be contributed by experienced cultivators. A comprehensive calendar of operations will be contributed by Mr. W. H. White, of Burford, Dorking, which should prove serviceable to all who are in any way engaged in the cultivation of Orchids.

"A series of historical articles is commenced in the present number by the first instalment of a very interesting History of Orchid Hybridisation.

"It is intended to make the illustrations a special feature of the work. In order to ensure accuracy and highly-finished results, they will be executed and reproduced by a photographic process. Care will also be exercised in their selection.

"Notes of rarities, geographical notes and sketches of Orchids at home, biographical sketches, literature, and any other matters likely to prove useful or interesting to Orchidists, will find a place in our pages.

"Reports of meetings and exhibitions, with doings of the month generally, will also be adequately provided for.

"In short, it is intended to make the work a general repertorium of Orchid lore, and, by conducting it on broad and independent lines, to enlist the sympathy and secure the support of all lovers of this unrivalled family."

How far we have succeeded in carrying this programme into effect during a period of twenty years can best be left to others to judge, and we therefore include a few of the numerous congratulatory messages which have reached us:—

"THE ORCHID REVIEW.—With its present December issue this useful Orchid journal celebrates the completion of its twentieth volume, and we take the opportunity to congratulate the editor on the success of his venture, launched in 1893 as an illustrated monthly journal 'devoted to Orchidology in all its branches.' The original programme has been followed faithfully. Few things relating to Orchidology have escaped attention; each subject has been exhaustively dealt with, and the matter placed before the reader in plain and straightforward language. The history of Orchids and their cultivation from the earliest times, the evolution of Orchids, their structural peculiarities, interesting facts concerning their discovery, the climatic conditions of their native habitats, and other subjects likely to be interesting and useful to the Orchidist, have received attention. Current topics have always been well represented, and the reports of Orchid exhibitions and meetings well reported. We trust that the *Orchid Review*, which attains its

majority in the coming year, will continue to flourish for many years to come."—*Gardeners' Chronicle.*

"With the December issue of the *Orchid Review* the twentieth volume is completed, and to commemorate the event the January issue will be an enlarged and special number. It has been decided to act upon the proposal made in the November number to prepare a general index. This is as it should be, for such a publication as this, which aims at covering every phase of Orchidology, in all probability is deemed worthy of a cover as each successive volume is completed."—*Journal of Horticulture.*

THE ORCHID REVIEW.—This monthly journal of Orchidology is now entering its twenty-first year. The first issue appeared in January, 1893, when it was established to supply a long-felt want among amateurs of Orchids, viz., a journal devoted to their special interests. Every branch of Orchidology, including cultivation, evolution, structural peculiarities, natural distribution, and the vexed question of hybrid nomenclature, has been discussed and continues to be discussed in the pages of the *Orchid Review*. The importance of this extremely useful work is fully recognised and appreciated by Orchid experts, and while wishing it every success in the future, we take this opportunity of congratulating Mr. R. A. Rolfe, A.L.S., the Editor, on the success he has achieved.—*The Garden.*

"Many congratulations upon the completion of the twentieth volume of the *Orchid Review*. My wife and I find the work an invaluable record, to which we constantly refer, and the proposed index for the whole of the volumes will be very acceptable as a time saver. I join with a large number of others in wishing many years of useful life to the *Orchid Review* and its esteemed Editor."—R. G. THWAITES, Chessington, Streatham Hill.

"The *Orchid Review* has reached the twentieth year of its existence, an age when one naturally expects better things, and I can only hope that the promise of youth and the care which you and others have bestowed upon it may be well repaid by a successful career in the future. There are days in which one has little time to call one's own, but I always manage to find time to peruse the pages of the *Orchid Review*."—SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

In thanking our friends for such kindly appreciation we would invite their increased assistance and co-operation in the future. Our pages are open to *bona-fide* communications from anyone, and valuable information is apt to be lost unless recorded at the time. Short notes or articles,

interesting flowers, records of hybrids, and photographs for reproduction will be cordially welcomed. Our aim is to make the work of the widest possible utility and interest, and no effort on our part shall be wanting to secure this end.

Lastly, we accede to a request made by some of our readers, who are good enough to think the occasion appropriate, to include a portrait* of

Very faithfully yours,

THE EDITOR.

*For the loan of the block, which was taken a year ago, we are indebted to the Committee of the Kew Guild. The book shown is also appropriate, being the first volume of the *Orchid Review*.

EVENTS OF 1912.

THE great event of the past year was, undoubtedly, the Royal International Horticultural Exhibition, held at Chelsea about the end of May, which brought together such a display of Orchids as has never been seen before, a specially heated tent, 250 feet long by 70 feet broad, being provided for its accommodation. Orchids, of course, were only one feature of the Exhibition, but with them alone we are concerned, and they were by common consent the principal feature of the show, and the magnificent group staged by Sir George L. Holford, which gained the Cup presented by His Majesty the King, had never before been equalled anywhere. Curiously enough a period of forty-six years had elapsed since the previous International Exhibition was held in London, in 1866, and considering that at this period the first hybrid Cypripedium had not yet reached the flowering stage, no comparison between the two shows is possible. Hybrids were the great feature of the recent show, and no fewer than twenty-two out of the twenty-seven Orchids certificated were of hybrid origin. The Exhibition was a great undertaking, well carried out, and was favoured with magnificent weather, the result being a great success, both from a spectacular standpoint and financially—the latter being shown by a report in the present issue.

Another noteworthy event of the year was the Exhibition of Autumn-flowering Orchids held by the R.H.S. on November 5th and 6th last, together with an Orchid Conference on the second day, which was attended by such success that we are promised a repetition next year, and the event may become an annual fixture. The Holland House Show, with the fortnightly meetings of the R.H.S. and of the Manchester Orchid Society have also been conspicuously successful.

HYBRIDS.

There has been an almost constant succession of hybrids throughout the year, some of them of great promise, almost every meeting bringing new candidates for public favour. Two noteworthy additions are seen in Vuylstekeara Hyeana and Lowiara insignis, two trigeneric hybrids for which the new R.H.S. Rule has been invoked. Odontonia Firminii is an interesting hybrid between Odontoglossum crispum and Miltonia vexillaria, raised by M. Firmin Lambeau, while five other Odontonias have made an appearance during the year. Hybrids of Cochlioda Nœtzliana have been well to the fore, and include Oncidioda Cooksoniæ, O. cinnabarina, and quite a number of Odontiodas. The popular genera Odontoglossum, Cattleya, and Læliocattleya have received numerous promising accessions, while the brilliant little series of hybrids from Sophronitis grandiflora steadily increases in number.

NOVELTIES

among imported Orchids have not been numerous, though a few have appeared, among which we recall the brilliant little Cirrhopetalum miniatum and Dendrobium Schuetzei, the latter a very fine Philippine acquisition introduced by Messrs. Sander, which has gained a First-class Certificate from the R.H.S., and was figured at page 337 of our last volume.

CERTIFICATED ORCHIDS.

There has been an increase in the number of Orchids certificated by the R.H.S. during the year, the majority again being hybrids. They include fifty-four First-class Certificates, 103 Awards of Merit, eighteen Cultural Commendations, and four Lindley Medals. An analysis of the list of those to which First-class Certificates were granted shows eleven Læliocattleyas, Odontoglossum and Cattleya ten each, five Odontiodas, Miltonia and Cypripedium four each, Cymbidium three, Brassocattleya and Dendrobium two, while Lælia, Vanda, and Sophrocatlælia each contribute a single example to the list. The Awards of Merit we have not attempted to analyse, but particulars of all of them are given in our reports.

OTHER INTERESTING EVENTS

that may be mentioned are the flowering of the first artificially-raised hybrid of the genus Ophrys, by M. Fernand Denis, and the definite identification of a parasitic fungus, Cercospora Odontoglossi, which has caused some trouble among British collections of Odontoglossums. Many interesting questions have been discussed in our pages, particularly relating to hybrids and hybridity, and a large number of striking acquisitions have been described or figured.

LOSSES DURING THE YEAR

include Mr. F. M. Burton, an Orchidist of thirty years standing, the raiser of Epidendrum Burtonii and several hybrid Cypripediums, Mr. J. S. Bergheim, a keen naturalist and lover of Orchids, who had made several trips abroad in pursuit of his favourite hobby, and M. P. M. Binot, who had been for many years an importer of Brazilian Orchids.

THE COMING YEAR

will witness another great Quinquennial Exhibition at Ghent, at which a very fine show of Orchids is anticipated, and we believe the Spring Show of the R.H.S. will be held about the end of May at Chelsea, instead of at the Temple Gardens, as formerly. These, with the Summer Show at Holland House, that of autumn-blooming Orchids at Westminster, and the usual fortnightly meetings in London and Manchester promise to be as successful as ever, for hybrids are still an increasing factor in these displays, and some interesting developments may be anticipated with confidence. We wish all our readers a Happy New Year, and increased success with, and enjoyment from their collections.

ORCHIDS IN SEASON.

A FLOWER of a hybrid Cypripedium, called Mrs. Harry Bruce, now flowering for the first time, has been sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, who also encloses flowers of the two parents, C. Sallieri virens, a form raised in the collection, and C. Thompsonianum. The seedling is larger than either parent, and much recalls C. villosum in its broad petals, lip, and staminode, while the dorsal sepal is very broad, green, with a narrow white margin, a dark median band, and some lines of small spots on either side. It is a good bold flower, though without the bright colour of C. Thompsonianum or the large well-defined spots of the Sallieri parent. The two parents have rather neutralised each other, but other seedlings may differ considerably from the present one.

A plant of Cypripedium Faire-Maud bearing a scape of two curiously abnormal flowers has been sent from the collection of G. F. Moore, Esq., Bourton-on-the-Water, by Mr. Page. The lip of the lower flower is absent, and the lower sepal is almost as broad as the dorsal one, one side being veined with rose, as in that, the other with green. The petals are quite horizontal, and the rest of the flower normal. The upper flower has one petal erect, and the other sepal-like and underneath, while the sepals are much alike and lateral. There are two miniature lips, apparently divisions of one original one, two stamens, and three stigmas. The plant is now at Kew, and it will be interesting to see what the flowers are like next year, for some of these abnormal flowers repeat themselves. Curiously enough, it was a plant of the same hybrid which produced the crocus-like flower noted at page 326 of our last volume.

CYPRIPEDIUM ASHBURTONIÆ WITH THREE SEPALS.

I ENCLOSE a photograph of a flower of Cypripedium × Ashburtoniæ in which the lower sepal has divided itself into two, each sepal being perfect, and other parts of the flower normal. This seems to be a reversion to the original form of construction of Cypripedium, as pointed out in your interesting articles on the Evolution of the Orchidaceæ. The plant has this summer produced five of these malformed flowers, besides one normal, and one in which the lower sepal was only partly divided. The plant is in bloom now for the third time this season, with one flower open, as shown in the picture, and one bud, which also shows the same characteristics. It really seems as though the peculiarity has become fixed. I will try to get some seed from these flowers to see whether their offspring will have the same tendency.—M. J. POPE, gardener to Mrs. B. B. Tuttle, Naugatuck, Conn., U.S.A.

VARIATION OF ODONTOGLOSSUM PERCULTUM.

THROUGH the kindness of Mr. H. J. Chapman, gardener to Mrs. Norman Cookson, Oakwood, Wylam, we are able to illustrate a remarkable group of eleven very diverse forms of Odontoglossum purcultum (figs. 1-6, 9-13),* raised from the same seed pod, together with two of the original grandparents, O. crispum Franz Masereel (fig. 7), and O. Pescatorei (fig. 8). The seed parent was O. Rolfeæ Oakwood var. (Pescatorei × Harryanum),

Fig. 1—6, 9—13. ODONTOGLOSSUM PERCULTUM.
Fig. 7. O. CRISPUM FRANZ MASEREEL. Fig. 8. O. PESCATOREI.

a large and handsome form, heavily blotched with dark purple, which received an Award of Merit from the R.H.S. in April, 1902 (*O.R.*, x. p. 148). The pollen parent was O. armainvillierense Cooksoniæ (Pescatorei ×

* For convenience of reference we have numbered the flowers, beginning with the one on the left, and then taking the vertical rows successively from top to bottom; the numbers, however, have not been added to the block.

crispum Franz Masereel) (the actual forms shown in figs. 7 and 8), a charming variety, copiously blotched with violet-purple on a white ground, which received a First-class Certificate from the R.H.S. in March, 1904 (*O.R.*, xii. pp. 117, 120). The varieties used as parents of O. percultum were not available when the photograph was taken, but we give a figure of O. armainvillierense for comparison. The other grand-

Fig. 14. ODONTOGLOSSUM ARMAINVILLIERENSE.

parent, O. Harryanum, is not included among the figures, but its characters are well known. Before comparing this polymorphic assemblage with the parent species it must be remarked that O. crispum Franz Masereel is not a pure crispum, but a natural hybrid in which O. luteopurpureum is more or less directly concerned—it may be a form of O. mirum or a reversion from O. Wilckeanum, but all one can say is that

the characters of O. crispum and O. luteopurpureum can be traced in it. Thus four species are concerned in the ancestry of O. percultum, O. Pescatorei—which comes in through both the parents—O. Harryanum, O. crispum, and O. luteopurpureum. The characters of the hybrids are fairly in accordance, for the influence of O. Pescatorei is very marked in figs. 1, 4, and 12, and less distinctly so in 5, 11, and 13, while that of O. Harryanum is obvious enough in 3, 6, and 10. There is a marked resemblance to O. Rolfeæ in figs. 11 and 13, and less so in 2 and 5, while O. armainvillierense can be traced in 1 and 4, especially the latter. The only flower in which the character of O. c. Franz Masereel is very marked is fig. 9. The characters of O. crispum and O. luteopurpureum, especially the latter, are less clearly traced, but the figures are too small for all of them to be very distinct. Most of the forms shown are very handsome, and when fully developed may be distinguished by varietal names. Such a batch affords a very graphic insight into what must take place in nature where crossing by insects is common, as in the O. crispum district, for example, and also the impossibility of tracing the ancestry of such complex hybrid forms by their characters alone. It once more emphasises the importance of keeping exact records. In conclusion we would ask some of our hybridists to self-fertilise O. crispum Franz Masereel. Some good forms would almost certainly result, while the forms which reverted would afford a valuable clue to its ancestry. We do not remember that such an experiment has been made. R. A. R.

A DEFINITION OF MENDELISM.—"As I understand Mendelism it is a concept pure and simple. One crosses various animals or plants and records the results. . . . We push things into the germ cells as we place the dollars in the magician's hat. Hocuspocus! They disappear! Presto! Out they come again! If we have marked our money we may find that that which appears from the magician's false-bottomed hat is not the same as that which we put in. But it looks the same, and is good coin of the realm. We have a good right, therefore, to poke our characters into the germ cell and to pull them out again if by so-doing we can develop—not a true conception of the mechanism of heredity—but a scheme that aids in describing an inheritance. We may do this even . . . if we remember . . . that we have not pulled something new and astonishing out of the germ cell, that a unit-factor represents an idea and not a reality, though it must have a broad base of reality if it is to describe a series of genetic facts."—Prof. E. M. EAST.

[We have always contended that unit-characters were imaginary things, having no actual existence, and the confirmation from such a source is valuable.—ED.].

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

THE Directors of the Royal International Horticultural Exhibition, 1912, met at the Royal Horticultural Hall, Westminster, on the 26th November, to consider a resolution for disposing of the property of the Company, after payment of all debts and liabilities.

The Balance-sheet showed a net profit of £2,870 3s. 7d. Allowing for payments which have still to be made, the balance may be taken as approximately £2,500. It was decided to disburse the profits in the following manner :—

To the Irish Gardeners' Association and Benevolent Society	£100 0 0
Towards the reprinting and bringing up to date of Dr. A. G. Pritzel's Botanical Index ...	£250 0 0

(To this latter purpose the R.H.S. have already promised to give £1,000).

The remainder of the profits—about £2,150—will be divided between the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, in the proportion of two-thirds to the former Institution and one-third to the latter.

A second resolution was passed, namely, that the Company be voluntarily wound up, and that Mr. G. J. Ingram be appointed liquidator. These resolutions will be confirmed at a later meeting.

R. HOOPER PEARSON,

Hon. Press Secretary.

GONGORA LEUCOCHILA.

THIS white-lipped Gongora is an extremely interesting species. A plant was sent to the Missouri Botanical Garden, St. Louis, U.S.A., from Guatemala, in 1909. Previous to its flowering it was taken for G. bufonia, which it strongly resembles in growth, but when the plant bloomed a few weeks ago it was identified with the plant described and figured as Gongora leucochila, Lem. (*Flore des Serres*, vol. i. t. 37). The pseudobulbs are ovate and strongly corrugated, and the leaves are elliptic-lanceolate, with five prominent ribs. The lateral sepals are half yellowish-white, the other half being lilac-purple with dark brown spots; the dorsal sepal and petals are wholly lilac-purple with dark brown coloured spots. The rachis and pedicels are also of a dark purplish lilac. The labellum is pure white, as the specific name indicates; it bears four horn-like appendages, the two basal ones short and flat, the others very long and acuminate. The labellum is curious in shape, and has been compared to "the mutilated body of a chicken just prepared for the spit." If the labellum be laid out

flat this description can be appreciated, the horns resembling the legs of a chicken admirably.

G. H. PRING.

Missouri Botanic Garden.

Mr. Pring, encloses a photograph, which fully confirms the determination. He has previously sent us an interesting article on Orchids at the Missouri Botanic Garden (*O.R.*, xviii. pp. 141-143), which we are glad to know brought him several communications, including one from Panama. He now adds: "It may be interesting to know that I am growing all my Chysis, Catasetums, and Cycnoches outside during the summer, and the Chysis, especially, are making very fine pseudobulbs." Of course the summer temperature is much warmer than in England.—ED.]

VANDA CŒRULEA PEETERSIANA.

THE appearance of the beautiful pink-flowered Vanda cœrulea Sanderæ at the R.H.S. meeting held on December 3rd last serves to recall the variety Peetersiana, probably the earliest pink-flowered form known. It appeared in the Establishment of M. A. A. Peeters, Brussels, and was exhibited at a meeting of the Société Nationale d'Horticulture de France in November, 1897, and shortly afterwards described (Cogn. in *Gard. Chron.*, 1897, ii. page 294). The author remarked: "This fine variety, remarkable for the complete absence of blue in the flowers, was shown in an importation from the Khasia Mountains by M. A. A. Peeters. It bore a spike of nine flowers. A coloured plate was also published (Cogn. *Dict. Ic. Orch.*, Vanda, t. 5a), showing the flowers about two inches across, beautifully suffused with rose-pink near the margin and paler towards the base, and the front half of the lip much brighter in colour. We should like to see the locality confirmed, for there is at least a suspicion that the pink colour in both plants may be due to re-crossing with V. Charlesworthii, and this would indicate the Shan States as the habitat. Possibly there are records which may clear the matter up.—R.A.R.

VANDA CŒRULEA ALBIDULA.—An inflorescence of a curious white form of Vanda cœrulea, with some lilac veining on the lip—presumably the one noted at page 31 of our last volume—is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. A photograph of a very similar form is also sent from the collection of O. Gunn, Esq., Newport, Mon. The habit of the plant is that of V. cœrulea, but the flowers are considerably smaller. It has been suggested as a possible hybrid, but, if so, we cannot at present suggest its parentage. Two or three other anomalous Vandas have appeared among importations of Vanda cœrulea from the Shan States locality, and it would be interesting to have further evidence of the species which grow there intermixed.—R. A. R.

THE ORCHID CONFERENCE.

(*Concluded from vol. xx., page* 355.)

The second paper was by Major C. C. Hurst, F.L.S., on the Application of Genetics to Orchid Breeding. The lecturer referred to the results achieved by Orchid breeders during the past twenty years as one of the seven wonders of the world of horticulture. A reference to the *Orchid Stud-Book* showed that at least 40 genera and 300 distinct species had been already utilised. These had given about 2000 primary hybrids, of which about 300 are generic hybrids, and some thousands of secondary, tertiary, and multiple hybrids, to say nothing of multitudinous varietal and individual forms which no man can number. In face of such an imposing array it might seem presumptuous on the part of a student of genetics to offer any suggestions as to the advantages that might be derived from an application of the science of genetics to Orchid breeding, but those behind the scenes knew that in order to secure a really first-class hybrid it was necessary to raise large numbers of others, and the number of misfits and unwanted weeds that turn up time after time was rather disconcerting.

A study of recent work in genetics pointed to the important fact that law and order may be perceived in breeding, and the problem of the breeder was how to manage his matings so as to reduce the number of worthless forms to a minimum. Under present conditions, however, Orchid breeders must very largely discover these certainties for themselves by experiment, and the field was so wide, the conditions so difficult, and the complications so numerous, that only a practical expert could carry them out. He then described the first principles of genetics, which the breeder should make himself acquainted with, and went into considerable details respecting the inheritance of individual characters, and especially the inheritance of colour and albinism. He also went into details as to the identification of individual stud plants whose breeding constitution had been tested, and the importance of keeping full records of all experiments, for the handsomest hybrids were not all equally good parents, and it was a sound principle to work with individual plants that had a good breeding record. He then made a number of suggestions as to the breeding of albinos, and the importance of distinguishing between true and false albinos, and gave a number of statistical and other details.

Mr. Crawshay congratulated the lecturer on his paper, and on the pertinacity with which he insisted on the application of genetics to Orchid breeding. The high mortality among seedling Orchids was a factor that introduced disturbance in the numerical estimation of results.

Mr. J. O'Brien said the paper raised subjects of great interest to Orchid raisers, and alluded to the extreme variability of and tendency to degenerate

in complex hybrids, the latter being sometimes very marked, and plants raised between two cross-breds of fine quality were sometimes very bad, or with only an occasional fine novelty among them.

The afternoon session commenced with an excellent paper on Some Epiphytal Orchids, by Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir G. L. Holford, Westonbirt. One of the points emphasised by the lecturer was the uselessness of growing Orchids according to a fixed schedule. The position and aspect of the house, and the proximity of trees or buildings, must be taken into consideration. Light was a most essential factor, and should be afforded on all possible occasions. Orchids, when heavily shaded, often formed weak growths, but the more light and sun, within reason, gave an improved constitution, with stronger inflorescences, and more lasting flowers. Lighter houses were needed, and fixed shading should be avoided. Full and free ventilation should be given whenever possible. Epiphytes in their native homes were exposed to a constant current of air, and we should copy nature by allowing plenty of ventilation, avoiding, however, cold draughts and sudden falls of temperature. Orchids were generally grown in too high a temperature. Epiphytes are largely dependent upon good roots being formed, and a suitable condition of the atmosphere as regards moisture was of far greater importance than any special rooting compost. Succulent materials, such as leaf-mould, should be avoided, and over-watering carefully guarded against, as it led to the decay of the roots. Rain-water should be used wherever possible. Excessive drying during the resting period was to be deprecated. The use of manures was strongly objected to, and experiments he had made always pointed to disastrous results. In conclusion Mr. Alexander said that heat, air, light, and moisture, with close observation and light houses, held the secret of success.

In answer to inquiries, Mr. Alexander stated that at Westonbirt a house was specially devoted to Vanda cœrulea, that some of the plants exhibited in the Hall had been grown for thirteen years but the majority for five to ten years, and that they were grown in an intermediate temperature, with a minimum of 50° Fahr., and the moisture always kept in accordance with the heat, a most important matter. It was remarkable that the finest plants always grew near to the ventilators. Sir Harry J. Veitch remarked that one of the best collectors once told him that the finest Vanda cœrulea grew in Nature on trees that were isolated, and it was a common sight to see peasants or regiments of soldiers on the march wearing a spray of the Vanda. The paper led to a very interesting discussion, in which Messrs. J. O'Brien, J. Fraser, W. H. Hatcher, W. Cobb, Gurney Wilson, A. A. McBean, and de Barri Crawshay took part. The Chairman, in proposing a vote of thanks to the lecturer, said that people with small collections

should go in for allied kinds. It was useless to grow so many kinds under the same treatment. His advice was to take up smaller subjects and do them well.

The last paper was Albinism in Orchids, by Mr. R. G. Thwaites. The lecturer said he was dealing with a controversial subject, and he made his remarks in no dogmatic spirit, but he had obtained many coloured forms from white parents when he expected to obtain albinos, and he found it most difficult to follow the theories of various writers. Some whites seem to possess a colour factor not discernible to the eye, and he found it difficult if not impossible to differentiate between the pure white and the apparent white except by experience of the progeny. He thought that, as in the case of the spectrum, white Orchids were, in some wonderful way, built up by colour, for he had produced white by crossing purple with yellow flowers. Dendrobium nobile virginale if selfed invariably produced white flowers, and the same could be said of Cattleya labiata alba. Most albino Orchids were varieties of coloured forms, and only when a white variety was constant for years was it a true albino. When these were crossed he believed they never gave coloured forms. In conclusion he appealed for the discontinuance of the practice of using the term alba for varieties unless one could be assured of the correctness of the term.

Mr. Rolfe, in opening the discussion, said it would be interesting and valuable if something reliable could be ascertained about the subject. Albinism was a quality—a very beautiful quality—and no doubt it arose from the absence of colour, but there was the difficulty that some albinos reproduced themselves true when selfed and yet reverted to coloured forms when crossed. Both Cattleya Warneri alba and C. Gaskelliana alba were true albinos, as far as could be ascertained by examining the flowers, but when crossed together some of the resulting seedlings were pure white and others light rose, showing that a latent colour factor had been revived. In the case of C. intermedia alba × Mossiæ Wageneri, however, the whole batch (C. Dusseldorfii Undine) was white. Cypripedium insigne Sanderæ, when crossed with C. callosum Sanderæ or C. Lawrenceanum Hyeanum, gave rise to coloured hybrids, yet all three came true when selfed. C. insigne Sanderæ, however, though one of the best yellows, was not a true albino, for it showed minute brown spots on the dorsal sepal, and the effect of crossing was to stimulate their development in the hybrids, the effect being much the same as if ordinary coloured forms of C. insigne were used. The effect of crossing was to revive a latent factor, and of course when plants were selfed no new and disturbing element was introduced. But even when plants were selfed the offspring were not always uniform. Messrs. Veitch had raised a batch of C. insigne Sanderæ by self-pollination, and,

though all came yellow, they were not uniform in character. Flowers of five seedlings had been picked out and sent to him, no two of which were alike, and in one the spots were distinctly more marked than in the original, while another was pure yellow, as pure as C. insigne Gladys, and he could not detect a speck of brown or a coloured hair anywhere. Reversion as the result of crossing was not remarkable, for lost or latent characters might easily be revived. A plant might be regarded as made up of a host of characters, which had been successively acquired, and some of these were evidently very ancient while others were geologically recent. In the course of evolution new characters were constantly arising. In conclusion he appealed to all those who were making experiments to send the results to the press, as by so doing a mass of evidence would be accumulated that would be of the greatest value to Orchidists.

Major Hurst remarked that the white of Orchids was not white in the sense of a combination of the colour of the spectrum, but rather the absence of colour, and attempted to explain that colour in Cattleya and Cypripedium was due to the simultaneous presence of two-colour factors, and the absence of either of them, as well as of both, would result in albinism. Messrs. J. Fraser, W. H. Hatcher, J. M. Black, W. Bateson, and de Barri Crawshay also spoke.

The Chairman, on behalf of the Conference, tendered a cordial vote of thanks to the lecturers and all who had helped to make the meeting a success, and Sir George L. Holford, in proposing a vote of thanks to the Chairman, said that all the skill in the world would not grow Orchids to perfection without proper glass accommodation, and failures were often due to bad housing and bad positions rather than to the want of care on behalf of the grower.

PHALÆNOPSIS INTERMEDIA PORTEI.—The Hon. Walter Rothschild states that, after five years resting, the large plant of Phalænopsis intermedia Portei, which has been at Tring Park for over thirty years, has again flowered. It produced this year three large-branched spikes, with a total of 185 flowers and fully-developed buds. The largest spike has 13 branches with 84 flowers and buds, the next largest 7 branches with 61 flowers and buds, and the smallest 5 branches with 40 flowers and buds. The plant was among an importation of Phalænopsis Aphrodite sent home by Boxall to Messrs. Hugh Low & Co., some 32 years ago (*Gard. Chron.*, 1912, ii. p. 453). One of the spikes was exhibited at the R.H.S. meeting held on December 17th last, and was awarded a Lindley Medal. P. intermedia originally appeared in an importation of P. Aphrodite (P. amabilis, Lindl.) with Messrs. James Veitch & Sons, and was described by Lindley as a natural hybrid between the latter and P. rosea.

CYCNOCHES PENTADACTYLON.

AN interesting Cycnoches appeared some time ago among the Peruvian importations of Messrs. Sander & Sons, and a plant obtained from them

Fig. 15. CYCNOCHES PENTADACTYLON.

has now flowered with the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, who has sent a flower for determination. A plant of the same origin was exhibited by Messrs. Sander at a meeting of the R.H.S. held on

March 25th, 1902, under the name of Cycnoches Amesianum (*Gard. Chron.*, 1902, i. p. 218), but owing to the close resemblance to C. pentadactylon, especially in the shape of the very characteristic lip, we thought it a form of that species, and so recorded it (*O.R.*, x. p. 117). The most obvious difference noticed was the rather smaller, more rounded spots, and the consequently greater amount of the yellow ground colour. This is less obvious in the flower now sent, and we think that both are forms of the same species. C. pentadactylon was described and figured by Lindley in 1843 (*Bot. Reg.*, xxix., Misc., p. 18, t. 22), from a plant which flowered with Messrs. James Veitch & Sons, then of Exeter. It is a very striking species, but is seldom seen in such perfection as in the accompanying figure, which flowered with W. W. Mann, Esq., Ravenswood, Bexley, and received a First-class Certificate from the R.H.S. in January, 1893. It bore ten racemes—five of them on one pseudobulb—with an aggregate of 247 flowers, of which thirty-seven were borne on a single raceme. It is a remarkable specimen in every respect. The flowers shown are all males. The female flowers have been known since 1889, both sexes appearing together in the collection of E. Gotto, Esq., The Logs, Hampstead Heath. It is a native of the Upper Amazons, being found at Manaos, on the Rio Negro, and on its tributary the River Purus. The late Mr. E. S. Rand has stated that it is the giant of the River Purus, and without exception the most beautiful and fragrant Amazonian Orchid known to him, filling the air with a delicious Vanilla-like fragrance. He has seen the pseudobulbs three feet long and two inches in diameter, and bearing flowers of both sexes, the males in racemes from the top of the pseudobulbs, sometimes two feet long, with from fifty to seventy flowers, and the females beneath, with from one to three flowers. Occasionally both are found on the same inflorescence, of which an example is preserved at Kew. R.A.R.

ONCIDIUM HYBRIDUM.—Another plant of Oncidium hybridum (tigrinum × lamelligerum) was exhibited by Messrs. Charlesworth & Co. at the R.H.S. meeting held on November 19th last, this time in much improved form. It bore a branched inflorescence of twenty-two flowers and buds, the twining habit in this case being absent. A flower kindly given to us is 2½ inches across, and has brown sepals with a narrow yellow margin, yellow undulate petals, prettily barred and blotched with brown, and a light yellow lip. The latter is three-lobed, with a broad front lobe ¾ inch across, and the crest terminates in front in many yellow tubercles. The column wings are rounded, bilobed, and fleshy, and thus it will be seen that the influence of O. lamelligerum is very marked in the flower. The original plant received a Certificate of Appreciation from the R.H.S. on December 21st, 1909, and was described in our pages (xviii. p. 8).

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

UNDER the above heading it is my intention to describe, month by month, the various cultural details which should be performed by an amateur who possesses a small heated house, which it is purposed to devote to the fascinating hobby of Orchid growing. The misleading and erroneous idea that Orchids cannot be cultivated except in specially constructed and elaborate houses is gradually losing ground, and it is a well-proved fact that certain Orchids can be grown successfully in almost any shaped house, which may be situated in any locality, and that their culture is attended with far less trouble than that required by many so-called greenhouse plants.

When once the decision to begin Orchid culture is made, the amateur will, doubtless, ask himself the question: "Is my house suitable, or what would it cost to erect one?" Taking the latter part first, a suitable house in which to begin Orchid growing could be erected for £15. Brick sides are not imperative, but heating by fire heat and the hot-water pipe system is essential.

Few modifications are necessary in existing houses, always providing the heating arrangements are correct. The main point to be observed is to have zinc trays made to cover the staging. Fill these with moss, and the atmosphere will never feel dry or stuffy. These trays should be as wide as the staging, but do not have them more than two feet in length, otherwise they lose their shape, and will not lie flat. Two shelves (in a span-roofed house) should be made and suspended about one foot below the eaves. If possible have the bottom ventilators on a level with the pipes, so that the air may be warmed before it comes into contact with the plants. From the above remarks it will be seen that the requirements of an amateur's small Orchid house are simple and few.

A suitable house being available, the question next arises as to what species and hybrids should be grown. Here I would administer a word of caution to beginners. Do not attempt to cultivate an endless variety of species and genera, a far greater measure of success will be obtained by cultivating only a few genera and species which require identical treatment. I would advise the many species and hybrids of Odontoglossum, the cool section of Oncidium, Cymbidiums, and cool species and hybrid Cypripediums. In arranging the plants leave room for a free circulation of air around each plant, and stand it either on an inverted pot or Orchid pan, according to its size or height.

ODONTOGLOSSUMS.—Throughout this month the various representatives of this genus will be in various stages of growth. A few O. crispum, hybrids,

Pescatorei, and Wilckeanum will be in flower, and some throwing up spikes, whilst others will be at rest.

ONCIDIUMS.—Most of the species of this genus will be in flower, notably crispum, Forbesii, incurvum, tigrinum, and varicosum. When they have finished blooming, stand them on the elevated shelf.

CYMBIDIUMS.—Several members of this handsome genus will be in flower, notably insigne, Tracyanum, and Winnianum. Lowianum will probably be in full growth, and should receive weak liquid manure twice a week.

CYPRIPEDIUMS.—Undoubtedly many of these will be in full bloom, and it is largely in those winter-blooming varieties that the utility of this genus lies. C. aureum, Boxalli, insigne, exul, Hitchinsiæ, Leeanum, Spicerianum, and villosum are invaluable.

GENERAL REMARKS.

Little needs to be done in an Orchid house this month. It is too early to repot any plant, and top-dressing should not yet be performed, and, therefore, the chief operations consist in maintaining a damp atmosphere, the correct degree of warmth, and in watering carefully. Damp the staging, pipes, and path, twice a day if fine weather prevails, if otherwise once at midday will be sufficient. An average temperature of 45°-50° Fahr. should be maintained at night, with an optional rise of five degrees during the day, or a little more with sun heat.

For a beginner the following rules are suggested with regard to watering for this month: Growing plants, a good dose every other day. Flowering plants, in fine weather once a day, on cold, sunless days, every alternate day. To all which are resting once a week will be found ample. With respect to watering, there are a few facts which should be clearly impressed upon the beginner: Should the temperature of the house fall below 45° Fahr. do not water any plants until it has risen to the correct figure. When applying water to any Orchid a good dose should be given, sufficient, in fact, to thoroughly *wet* the *whole* compost, not a mere sprinkling on the surface. Rain water, which in winter should be tepid, should always be employed. Admit as much air as possible, but do not ventilate if the thermometer stands below 48° Fahr.

Generally, during the middle of the day, a fair amount of air can be admitted, but close the ventilators as soon as the temperature is liable to fall below the prescribed degree. No shading is needed this month. Group all plants which are at rest at the cooler end of the house. Here they will remain inactive for a greater length of time than if placed at the warmer end, and no mistakes need be made with regard to their watering. Next month I shall hope to dwell at greater length on the important subject of ventilation.

NOMENCLATURE OF HYBRIDS.

ECHOES OF A RECENT DISCUSSION.

A HYBRID of complex parentage, in which five species are supposed to be involved, has recently received the name of Odontoglossum Lambardeanum, and the circumstance has led to a rather protracted discussion on the question of the nomenclature of hybrids in general and the existing rules in particular.

A. This complex parentage is a fair example of the confusion which is likely to arise from the application of Latin or Latinised names to garden-raised Orchids. That is the root of the evil, and it is a curious fact that the giving of Latin names to garden products was not begun by the raisers of hybrid Orchids, either amateurs or nurserymen, but by scientific botanists—

B. It began long before hybrid Orchids were even thought of.

A. In course of time the R.H.S. came to perceive that definite rules must be laid down for the nomenclature of garden-raised Orchids, and a sub-Committee was appointed to consider the subject. A rule was established that, so far as possible, names in the vernacular should be given to all garden-raised Orchids, but an exception had to be made in the case of primary hybrids, because so many had already been named in the Latin by early raisers—

B. I thought you said "scientific botanists." I have been looking up the Report of that sub-Committee, and I find—I am reading from their own report: "Hybrids between species raised artificially should be named in Latin." "The Orchid Committee should decline to recognise any unauthorised name, or any name that is deemed unsuitable, or one that is not applied in conformity with the preceding rules." That is rather different.

A. The Committee were desirous of restricting the use of the Latinised names to the compound forms adopted at the Paris Conference, such as Digbyano-Mossiæ—all departures from that method being in the vernacular, and this method of the bi-nomial and fancy compound name, or the simple name in the vernacular, worked well at the time, and was followed by most of the principal raisers.

B. But the double name never worked well. When "Digbyano-Mossiæ" was proposed, the *Gardeners' Chronicle* remarked: "We hope some means may be taken to render the name less cumbrous." It is too long, as our writers sometimes find when speaking of its white variety, Queen Alexandra, so they omit it. The vernacular was tried, and Cypripedium Charles Canham was described (by request), but was promptly changed into Canhamii.

A. The method, I was saying, worked well, but Science once more

intervened. The *Orchid Stud-Book* was published, in which many compound and fancy names were changed for Latinised appelations in a manner that appears to us unwarranted.

B. But the *Orchid Stud-Book* adopted a simple and uniform rule, that specific names should consist of a single word—the use of two short words being permissible where they can be connected by a hyphen. It adopted all classical and fancy names that agreed with the said rule, and it declined to recognise others. It did what would have been done at the outset if the R.H.S. rules had been followed, carrying out the original idea as far as possible.

A. There is a fixed rule against such procedure. The Brussels Congress rules say: "No one has a right to alter a name or combination of names without weighty reasons founded upon a very thorough knowledge of the facts or upon the necessity of abandoning a nomenclature contrary to the rules." Again they say: "The specific name of a hybrid may be expressed in Latin or in any language that is written in Roman characters."

B. But what is the use of citing the rules of a Nomenclature Congress that did not meet till long after the *Orchid Stud-Book* was published. Besides, the clause beginning "No one has a right to alter" is only a saving clause under the section: "Names that are to be rejected, dropped, or modified," and is only intended to prevent the abuse of a very necessary rule.

A. There can be no question about the regularity of the names superseded in the *Orchid Stud-Book*. Most of them were adopted by the Committee of the R.H.S., many were awarded Certificates, described and figured in the various periodicals, recorded in the Society's *Journal*, and appear among the nearly 2000 pictures of Certificated Orchids, with the records duly filled in and signed by me as recorder.

B. The names superseded in the *Orchid Stud-Book* were neither regular nor correct, and their number is the measure of the neglect of recorders to observe existing rules.

A. The names were in accordance with the rules, and had the authority of the Paris Nomenclature Conference.

B. I have the said Rules before me, but cannot find anything to support the statement.

A. If it were competent for the authors of the *Orchid Stud-Book* to proceed in the manner they have done, it would be equally excusable for any set of self-constituted authorities—

B. That phrase has no application to the *Orchid Stud-Book*, for its authors adopted the Vienna rules, embodying them in a short and simplified wording. The Vienna rules say that the names of hybrids are subject to the same rules as names of species, with the addition of the sign × before

the name, and that the rule applies to ternary hybrids, or those of a higher (more complex) order.

A. There is another reason against this changing of names. It makes an old plant into a novelty.

B. That is only an additional reason why the name chosen should be in correct form at the outset.

A. My objection to Latinised names is that they are almost exclusively personal complimentary names. The better way would be to give the person's name in full—Cattleya John Jones, not Cattleya Jonesii.

B. Then why did you give such names as Cypripedium Clinkaberryanum, Læliocattleya Brymeriana, Dendrobium Owenianum, and many others?

A. They were perfectly in order, as they were primary hybrids.

B. Not Læliocattleya Brymeriana, and you did not say it was originally. But that is not the point. You say that such names are the "root of the evil." I don't, and there were already the precedents Læliocattleya Aurora, Cassandra, Proserpine, Stella, Zenobia, &c. I have given scores o others. They are admirable, but their use does not exclude such names as Calanthe Dominyi, Veitchii, &c.

A. The Madison Congress resolved that all garden-raised plants should be given specific names in the vernacular, and there is no other reasonable course to take.

B. It does not prevent confusion. "Chaos" was the only word that the *Gardeners' Chronicle* could think of as suitable to describe the condition of things when the *Orchid Stud-Book* was published, and it said that the work made a definite step towards the evolution of order. It was Chaos, also, that led to the formation of the original R.H.S. Nomenclature Committee, of which you were a member. You helped to draw up the rules, the neglect of which has necessitated so many names being "rejected, dropped, or modified," and now you censure those who attempt to carry the rules into practice. Even the R.H.S. defends the system adopted. It has published its replies to questions submitted to it by the Brussels Congress, which were based on examples taken directly from the *Orchid Stud-Book*. The answers are: "The specific names of these hybrids should be in the Latin form." "These specific names should consist of a single word."

A. You quote the Vienna rules as saying: "Ternary hybrids, or those of a higher (more complex) order are designated like ordinary hybrids." That implies that the more mixed the parentage the higher the order in their standing as hybrids. The Brussels rules clearly indicate the nature of the hybrid of a higher order: "Ternary hybrids or those of a higher order (crosses between *species* of the same genus)."

B. That is erroneous. Such a phrase would indicate primary hybrids,

which had been dealt with in a previous sentence. It simply means "more complex," that is to say, hybrids containing three, four, or even five species. A plant is not less a hybrid because two or three additional species are brought into the ancestry. And you should have finished quoting the rule: "The name, which is subject to the same rule as the names of species." You should also have cited the example given: "× Salix Staehleri." Both testify against you, and confirm the practice of the *Orchid Stud-Book*, of two years earlier date.

C. Gardeners are themselves largely to blame for these fearful Orchid names, because instead of naming their home-bred Orchids as other breeders do, they asked the botanists to do it for them. I am heretic enough to say, "blow the conferences and confound the botanists who have helped to make Orchid names what so many of them are." (Proceeds to quote a string of them, nine in number).

B. Three of those names were given by nurserymen or amateurs, and not one of the others was given by a botanist in that incorrect form. Two are not even current, and one is purely imaginery. Even those in current use are only so in opposition to rule. Do you call that criticism?

C. Only last week two new Orchids were shown and certified as Sophro-Lælio-Cattleya Carna and Lælio-Cattleya Golden Oriole var. Ruby. I should have called them Cattleya Carna and Cattleya Ruby. The plain common sense plan would be to give a hybrid the same generic name as the parent it most resembled. "I would mop off these long and ugly names and substitute better."

B. The plants you mentioned are not Cattleyas at all, and one of them has already a specific name. Your plan would not only give us several different specific names for seedlings out of the same capsule—Cypripedium aureum over again—but it would even put some of them in one genus and some in the other.

C. Names should be easy to read, write, and speak.

B. I agree, and you could easily have cited me as one of the earliest and most consistent advocates of the system—Cattleya Zenobia dates from 1887. I seldom use any other when personal choice is possible.

C. That proves that many Orchid names are abominable. My little dog was named Nebuchadnezzar, but my children insisted that Neb. was long enough.

The moral of this discussion seems to be that those who name our plants should observe the rules which have been drawn up by representative Committees for their guidance, and that confusion in nomenclature arises chiefly from their neglect; not from the use of Latin names. If it has this effect the discussion will have served a useful purpose.

BRASSOCATTLEYA LANGLEYENSIS.

FIG. 16. BRASSOCATTLEYA LANGLEYENSIS.

THE above figure represents a fine form of Brassocattleya langleyensis (Cattleya Schrœderæ × Brassavola Digbyana) which was included in

the magnificent group of Orchids (staged by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), at the Royal International Horticultural Exhibition, Chelsea, last May, and which won the King's Cup. The flowers are very large, of excellent shape, and the colour a delicate pink, with a light yellow disc to the lip. This form was raised in the collection. The original form was raised by Messrs. James Veitch and Sons, Langley, and flowered for the first time in March, 1902, when it received a First-class Certificate from the R.H.S. under the name of Læliocattleya Digbyano-Schrœderæ (*O.R.*, x. p. 117). The name was afterwards amended to Brassocattleya langleyensis (*Orchid Stud-Book* p. 45).

CALENDAR OF OPERATIONS FOR JANUARY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

TIME, with its chastening hand, again brings us to the opening of another year, and with it we see the commencement of the twenty-first volume of the *Orchid Review*. During the twenty years of its existence Orchidology has made immense strides, especially in the departments of the cultivator and the hybridist, and in this development the influence of the *Review* has been a power for good. We cordially wish it increasing success in the days to come.

The work of the present month will consist chiefly in maintaining the proper temperatures, providing suitable atmospheric conditions in the houses, and the cleansing of the plants and the houses. The plants should be kept as quiet as possible, no attempt being made to unduly push them into growth, as this premature growth is never satisfactory, and in many cases damps off, and sets up decay of the rhizome.

TEMPERATURES.—The most suitable temperatures for the different departments are as follows :—

Cool house : day, 50° to 55°, with sun, 60° ; night, 50°.

Intermediate house : day, 60° to 65°, with sun, 66° ; night, 57° to 60°.

Cattleya and Mexican houses : day, 60° to 65°, with sun, 68° ; night, 58°.

East Indian house : day, 65° to 70°, with sun, 75° ; night, 65°.

These figures are only given as a guide, as no harm will accrue from slight variations either way, but if the temperatures are allowed to fluctuate widely serious damage may occur.

VENTILATION.—The ventilation of the houses at this season must have most careful attention at all times. They should be re-charged with pure air every day by some means, as a stagnant atmosphere is most injurious. The admission of fresh air to the houses does not, in many cases, get the attention it should have, and the observant grower will soon find the difference between a badly ventilated and a judiciously ventilated one. It

is wonderful the effect of a single ventilator being open on the inside of the house, even for half an hour during the day, if only open, say, a quarter of an inch. To those who are troubled with houses that feel stuffy and oppressive I would recommend the experiment of admitting more air both during the night as well as by day. Draughts, however, must be avoided, as these are highly injurious to all plant life.

ATMOSPHERIC MOISTURE must be regulated according to the outside conditions. Should the weather be clear and bright, or should it be necessary to use much fire heat, more moisture is required than is necessary when the outside atmosphere is heavily charged with moisture. The great thing to avoid at all times is a *low* temperature heavily charged with moisture, many so-called diseases of plants are attributable to houses being kept in this condition.

WATERING.—At this season of the year the greatest care must be taken in watering the plants, as this is the great secret of successful cultivation. An excess of water causes the roots to decay, and an insufficiency causes them to wither and die, and the loss of roots to any plant spells disaster. Plants differ so much, even of the same species, in the amount of moisture they are capable of taking up that the grower must use his own powers of observation as to whether they require water or not. The condition of the compost in which the plant is growing has to be taken into consideration, as some composts retain water more than others. At this season it is wise to err on the side of carefulness. Avoid a water-logged, saturated compost at all times.

ODONTOGLOSSUMS that are showing for flower should be carefully and neatly staked up as the spikes become long enough. They are best set by themselves when done, so that they can be examined from time to time for slugs, which devour the spikes and do irreparable harm. Small, weakly plants should have their spikes removed as soon as they show, as these plants should not be allowed to flower until they get fairly strong, and then only be allowed to produce one or two flowers. The house should be vapourized from time to time as a preventive against thrip and other pests. Many plants towards the end of the month will be starting into growth, and may be repotted, but it is not wise to do them until they get into the desired condition, namely, when they are about to push new roots.

MILTONIAS that are now growing in the Intermediate house, exposed to all the light possible, may have water afforded them whenever they become dry. The compost should be allowed to get into this condition between each operation. The usual precaution against thrip—the arch enemy of this plant—must be taken, as, if allowed to obtain a foothold at this season it will disfigure the leaves and do much harm.

CATTLEYAS.—The present month is the quietest in the whole year for

these beautiful plants, not many species or hybrids being in flower. A few, however, will always be in bloom where a representative collection is grown, especially the hybrids. C. Percivaliana and C. Trianæ will develop their flowers during this month, and will be most acceptable during the dull days often prevailing at this season.

LÆLIA ANCEPS and its varieties, now in full bloom, make an attractive display, and where flowers are required in quantity at this season are most useful. The plants should be kept moderately dry, but sufficient water should be given to keep the bulbs plump and the roots healthy.

SOPHRONITIS GRANDIFLORA.—This delightful miniature gem, having now expanded its scarlet flowers in the Cool house, will remain in bloom for fully a month, therefore should be grown in quantity. Water should be given whenever they become dry. After the flowers have faded. and the bulbs are fully matured, much less water at the roots will suffice, but even then they must not be allowed to become dry at the roots, which is detrimental to them at any time. Repotting is best deferred until the plants are seen to be pushing roots from the half-made pseudobulbs. They thrive best suspended, well up to the light, at the warmest end of the Cool house, with a free circulation of fresh air.

LYCASTE SKINNERI.—The earliest plants of this popular species are already pushing up their flowers, and to prolong the season they may be placed in a slightly higher temperature than that in which they have been grown, as this will assist the flower scapes in their development. The plants at this season should be kept moderately dry at the roots, and a cool intermediate temperature answers their requirements.

CYPRIPEDIUMS, as they pass out of bloom, should be examined. and any that are in need of repotting should have attention. The pots should be well-drained, and the plants potted moderately firmly, using a compost as follows: Two parts best fibrous peat, one part osmunda, polypodium, and loam fibre, and a liberal mixture of sphagnum moss. The usual precautions as to watering newly-potted plants must be observed. The later-flowering species which are pushing up their spikes must have water afforded them whenever they become dry.

CŒLIAS.—Such Orchids as C. bella, C. Baueriana, and C. macrostachya are not often seen, but are well worth including in representative collections, especially the first-named species, its purple-tipped sepals and lip of canary yellow being very attractive. These plants are now starting into growth, and should be repotted if necessary. The pots should have ample drainage, and a similar compost to that used for Miltonias. They will succeed under the same conditions as that Orchid at this season, in a light position in the Intermediate house. When the plants are thoroughly established they should have liberal supplies of water.

DENDROBIUMS.—Plants of these useful Orchids that have been rested in a house of comparatively cool temperature, and on which the flower buds are well advanced, may now be placed in a slightly warmer house. A light position in the cool Intermediate house is suitable for them during their early stages, and later on a slightly higher temperature will do no harm. But there is great danger of these plants throwing the whole of their buds if placed in excessive warmth during bud formation, which should, therefore, be avoided. Care should be taken in the application of water to the roots of plants that are in this condition, but they must not be allowed to suffer for want of it.

DENDROCHILUMS.—As soon as the growth of D. glumaceum and the variety validum reach a height of two or three inches they commence to push forth a number of roots, and if repotting is required this is a suitable time to perform the operation. They will succeed in the same compost as Cypripediums, and should be potted in the same manner. They delight in a fairly humid position in the Intermediate house, and the delicate perfume of the flowers of D. glumaceum makes its slender grass-like flower spikes an acceptable ornament to our houses.

SPATHOGLOTTIS.—Such species as S. aurea, S. Lobbii, S. Fortunei, S. Vieillardii, S. Kimballiana, S. plicata, and the hybrids, S. aureo-Vieillardii and S. Colmanii, delight in the temperature of the warmest house when in full growth. These plants are often rested too severely, thereby causing a check, which, especially with S. Fortunei and S. Lobbii, may do irreparable harm. The plants should not be allowed to remain dry for any length of time, but have sufficient water to keep them plump and healthy. The hybrids, S. aureo-Vieillardii and S. Colmanii, are now pushing up their flower-spikes, and must be carefully watered, for with an excess of water there is a danger of the flower spikes damping off and the plants starting into premature growth. As the spikes get long enough they should be carefully tied to neat stakes, otherwise there is a danger of their getting broken. When the plants commence to grow they may be repotted in a similar compost to that used for Cypripediums. They should not be potted too firmly, and be carefully watered until they become re-established.

CŒLOGYNE CRISTATA and its varieties are pushing up their flower spikes, and must have water whenever they become dry. After flowering they should be induced to rest. C. pandurata and other varieties, as they commence to grow, may be watered whenever they become dry. Those at rest must only have sufficient to prevent shrivelling, as many of the varieties will not flower unless they are subjected to a good rest.

DECIDUOUS CALANTHES.—These useful Orchids, as they pass out of flower, should be placed in a safe position to rest, avoiding too low a temperature or much harm may accrue.

GENERAL REMARKS.—This month is usually the coldest in the year. and we may expect some changeable weather, therefore every precaution should be taken against fluctuation of temperatures in the houses, as these, if drastic, are apt to do much harm. The cleansing of the houses and the plants, if not already completed, should be brought to a conclusion as speedily as possible. The stocks of potting material, such as peat, fibres, and sphagnum moss, with other necessary materials, should be got in, so that when the busy season arrives there is no delay. A well-laid plan will greatly assist in getting through the work in the busy season, and lead to much being accomplished that would not be done under other circumstances.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 19th, 1912, when there was a very fine display of Orchids, the leading feature being a brilliant group of Vanda cœrulea, which gained both a Gold and a Lindley Medal. Five other Medals, two First-class Certificates, and two Awards of Merit were also given.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Messrs. J. O'Brien, de Barri Crawshay, R. Brooman White, W. Bolton, W. H. White, A. Dye, W. P. Bound, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Cypher, J. Charlesworth, C. H. Curtis, A. McBean, F. Sander, T. Armstrong, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, C. J. Lucas, and Gurney Wilson.

His Grace the Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), staged a magnificent group, consisting mainly of about 200 well-flowered Vanda cœrulea, in a space thirty-six feet long by six feet deep. The middle and ends were raised, and the front and lower part of the group consisted of many well-grown Cypripedium insigne Sanderæ, with a few other Cypripediums, which afforded a good contrast to the blue of the Vandas. A Gold Medal and a Silver Lindley Medal for excellent culture were deservedly awarded.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the pretty Sophrocatlælia Olive Fairlawn var., a well-shaped rosy-red flower, Odontoglossum amabile Rosetta, and the handsome Cattleya Iris King George V.

Lady Theodora Guelph, Inwood, Templecombe (gr. Mr. Hester), sent Cattleya Neptune (labiata × Schilleriana).

F. A. Hindley, Esq., Croft Villa, Great Horton, Bradford, sent Cypripedium Hassallii Hindley's var. (bingleyense × Charlesworthii), a well-shaped flower, with a rosy-tinted dorsal sepal.

Lieut.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Læliocattleya Neleus (C. Iris × L.-c. Ophir), a handsome

flower, most like the latter in shape, and having greenish yellow sepals and petals, and a crimson lip.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent Læliocattleya Adolph-Iris (L.-c. Adolphus × C. Iris), having Indian yellow sepals and petals spotted with red, and the front lobe of the lip crimson.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Læliocattleya Muriel, a pretty white flower, and Cypripedium Harlequin.

W. Thom, Esq., Athol House, Blackburn (gr. Mr. Stretford), showed Cypripedium Bulgar (insigne Harefield Hall var. × Parkerianum).

Messrs. Stuart Low & Co., Bush Hill Park, staged a fine group, including Cattleya Dusseldorfii Undine, white varieties of C. labiata, some good C. Fabia, Dendrobium Phalænopsis, and Oncidium varicosum Rogersii, Læliocattleya St. Gothard, Calanthe veratrifolia, Odontoglossums, Epicattleya Nebo, Vanda cœrulea, the interesting Lowiara insignis (Sophronitis grandiflora × Brassolælia Helen), described at page 360 of our last volume, Cypripedium Charlesworthii, and many others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group of Cypripediums, including C. Thalia giganteum, Swinburnei magnificum, the fine Charlesianum Cypher's var., fulshawense, Milo Westonbirt var., many good forms of Leeanum, insigne, Actæus, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a very pretty group, including a brilliant Læliocattleya Haroldiana, some good Cattleyas and Odontoglossums, Cypripedium Dreadnought, Lord Nelson, Pyramus var. Black Prince (Euryades × Mrs. Wm. Mostyn), a fine dark form, and many others, Cœlogyne brunnea, Masdevallia trinema, Cirrhopetalum Medusæ, Lycaste Mary Gratrix, Bulbophyllum hirtum and Careyanum, Oncidium bicallosum, and other good things (Silver Banksian Medal).

Messrs. James Veitch & Sons, Chelsea, staged a fine group, including Odontoglossum Anaphe (Uroskinneri × crispum), a prettily spotted flower, a fine hybrid between Cattleya Dowiana aurea ♀ and Brassolælia Veitchii ♂, having flowers of a rosy mauve shade. Cypripedium Baron Schröder, some good forms of C. insigne, Leeanum, Euryades, and others (Silver Banksian Medal).

Messrs. Swan & Price, Keyfield Nursery, St. Albans, staged a good group of Cypripediums, including C. Baron Schröder, Niobe, Germaine Opoix, triumphans, good forms of C. insigne, Leeanum, Actæus, and others (Bronze Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice little group, including Oncidioda Marjorie (C. Nœtzliana × O. Forbesii), a pretty bronzy flower of intermediate character, with the front of the lip light yellow, Oncidium hybridum with a strong branched spike, Sophrocattleya

Saxa, Trichopilia Gouldii (nobilis × suavis), bearing a spike of five white and fragrant flowers, Catasetum discolor, Oncidium varicosum concolor, Sarcopodium Cœlogyne, Angræcum infundibulare, and some good Odontoglossums, including a richly-coloured, home-raised O. crispum.

Mr. E. H. Davidson, Orchid Dene, Twyford, sent Cattleya labiata Helene, a clear white form with a violet blotch on the lip, and a handsomely blotched Odontoglossum.

Messrs. Hassall & Co., Southgate, staged good group of Cattleyas and Cypripediums, a fine Angræcum infundibulare, and Sarcopodium Cœlogyne.

Messrs. J. & A. A. McBean, Cooksbridge, sent Læliocattleya auto-Doin (Lælia autumnalis × Cattleya Octave Doin), a pretty rosy flower with a white base to the lip.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM ELATIOR (Leeanum × Baron Schröder).—A very beautiful hybrid bearing four flowers, the dorsal sepal white, heavily blotched with purple, and the petals and lip greenish yellow, suffused and marked with brown. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

LÆLIOCATTLEYA BELLA ORCHID DENE VAR. (L. purpurata × C. labiata).—A very fine form, having rosy purple sepals and petals, and the lip rich purple-crimson in front. Exhibited by Mr. E. H. Davidson, Esq., Orchid Dene, Twyford.

AWARDS OF MERIT.

CYPRIPEDIUM LATONA (Niobe × Alcibiades).—A well-shaped flower, having a white dorsal sepal, with green base, and lines of large purple blotches, and the sepals and petals greenish yellow and brown. Exhibited by Lieut.-Col. Sir George L. Holford, K.C.V.O.

LÆLIOCATTLEYA SCYLLA (L.-c. Cappei × C. Rothschildiana).—A very pretty hybrid, having fiue apricot-yellow flowers, tinged with rose on the margin of the lip. Exhibited by F. M. Ogilvie, Esq., Oxford.

At the meeting held on December 3rd there was again a fine display of Orchids, and the Awards consisted of five Medals, two First-class Certificates, three Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien, J. S. Moss, Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. Sander, R. A. Rolfe, T. Armstrong, A. McBean, C. H. Curtis, W. Cobb, J. Charlesworth, J Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, W. P. Bound, W. Bolton, de B. Crawshay, Sir Jeremiah Colman, and Sir Harry J. Veitch.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a very interesting group, to which a Silver Banksian Medal was

awarded. The front consisted of some well-grown Cypripedium insigne Sanderæ, and we noted C. i. Bohnhofianum and Harefield Hall var., C. Leeanum and Pittianum, Cattleya Clarkiæ, Dendrobium Phalænopsis, Chondropetalum Fletcheri, Maxillaria Hubschii, Miltonia Bleuana, Odontoglossum armainvillierense Pittianum, and others.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), showed Odontioda Latona, Odontoglossum Lambeauianum with a well-branched spike, and the fine Cypripedium Leeanum J. Gurney Fowler.

Lieut.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent the charming Vanda cœrulea Sanderæ, bearing two fine ten-flowered spikes of clear pink flowers, and Cypripedium Nydia (Niobe × nitens-Leeanum).

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), sent Cypripedium Beatrice (aureum Hyeanum × memoria Jerninghamiæ).

Messrs. Sander & Sons, St. Albans, staged a fine group, including a plant of Chondropetalum Fletcheri bearing two spikes of four flowers each, in which the lip was minutely fringed at the margin, Cattleya Sylvia, Læliocattleya Golden Oriole, Statteriana, and others, Govenia Gardneri, and a lot of good Cypripediums, noteworthy among them being C. Conquest (Earl of Tankerville × Leeanum Clinkaberryanum), C. Smaragdina (Euryades × Ville de Paris), C. St.-Andre (Leeanum × Actæus brugense), having a large white dorsal sepal, with a green base, a dark purple median band, and few small purple spots, C. Arthur-Sanderæ, Vandyck, Troilus, and others (Silver Flora Medal).

Messrs. James Veitch & Sons, Chelsea, staged a showy group, containing about three dozen seedling Zygopetalum Mackayi, obtained by crossing this species with Odontoglossum crispum, but, as usual, no trace of the Odontoglossum could be detected, Læliocattleya Pallas, Brassocatlælia Morna (B.-c. Maroniæ × L.-c. bletchleyensis), a pretty rose-pink flower, Odontoglossum Wilckeanum, Cypripedium Germaine Opoix, C. Idina (insigne Harefield Hall var. × Countess of Carnarvon), San-Actæus, Tracyanum, and others (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a pretty group of Cypripediums, with Lælia anceps Schrœderæ, Læliocattleya Rubens, Zygopetalum crinitum, Cattleya Harrisoniana, Masdevallia Schrœderiana, Calanthe Harrisii, Cymbidium Tracyanum, &c. (Silver Banksian Medal).

Messrs. W. B. Hartland & Sons, Cork, staged a pretty little group, including Odontoglossum Groganiæ, with a well-branched spike of purple flowers, and other Odontoglossums, a fine home-raised Cattleya Hardyana, Vanda tricolor, some good Cypripedium insigne Sanderæ, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group of Cypripediums, Cattleyas, Læliocattleyas, Vanda suavis, &c. (Silver Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, containing some good Cypripediums, Odontiodas, Sophrocattleya heatonensis, Brassocattleya Rutherfordii, &c., with a fine plant of Angræcum sesquipedale, bearing ten flowers, in the centre.

Mr. E. H. Davidson, Orchid Dene, Twyford, sent a very pretty hybrid from Cattleya Dowiana aurea and Læliocattleya Gottoiana, having primrose yellow sepals and petals, freckled with rose at the tips, and the lip rosy crimson with some yellow veining.

Messrs. Stuart Low & Co., Bush Hill Park, sent Cypripedium Eva (aureum Hyeanum × memoria Jerninghamiæ).

Messrs. J. & A. McBean, Cooksbridge, sent several hybrid Odontoglossums, three Cattleya aurensis, some good Cypripediums, Cymbidium Doris, and a good form of C. Wiganianum.

Messrs. Swan & Price, St. Albans, sent Cypripedium Maurice, C. Germaine Opoix, and a few other good Cypripediums.

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA GOLDEN ORIOLE VAR. RUBY (L.-c. Charlesworthii × C. Dowiana aurea).—A very richly-coloured form, having claret-red flowers, with narrow yellow lines on the base of the lip. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O.

ODONTIODA LATONA FOWLER'S VAR. (Odontioda Bradshawiæ × Odontoglossum spectabile).—A handsome hybrid, having the sepals and petals heavily blotched with brownish crimson on a rosy blush ground, and margined with rose, the lip being white, with a bright yellow crest and a large reddish blotch in front. Exhibited by J. Gurney Fowler, Esq., S. Woodford. There were eight flowers, but the terminal one was missing, which led to some discussion because of the rule against disbudding.

AWARDS OF MERIT.

CYPRIPEDIUM EURYBIADES (Euryades × Alcibiades).—A large and striking flower, having a white dorsal sepal, spotted with dark purple, and an emerald green base, and the petals and lip yellowish green suffused with purple-brown. Exhibited by Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White).

CYPRIPEDIUM VIKING (Buchanianum × illustre).—A large and striking hybrid, having a broad white dorsal sepal with a prominent violet-purple median band, and the petals and lip yellow, suffused and marked with brown. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O.

SOPHROCATLÆLIA CARNA (L.-c. Cappei × S.-l. heatonensis).—A large and handsome hybrid, having a magenta rose flower, with a buff yellow throat to the lip.

CULTURAL COMMENDATION.

SIGMATOSTALIX RADICANS.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., Burford, for a very large specimen, covered with flowers.

MANCHESTER & NORTH OF ENGLAND ORCHID.

AT the meeting held on Thursday, November 14th, in the Town Hall, Manchester, the members of Committee present were: Rev. J. Crombleholme (in the Chair), R. Ashworth, J. Cypher, J. Evans, W. Holmes, J. Lupton, C. Parker, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

W. R. Lee, Esq., Heywood (gr. Mr. Branch), was awarded a Gold Medal for a group composed principally of Cypripediums, all the finest varieties in cultivation, with several fine Cattleyas of the labiata and Portia section.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was also awarded a Gold Medal for a very effective mixed group, including Cattleyas of the labiata section, Octave Doin, Portia, Læliocattleya callistoglossa, Odontoglossum armainvillierense, Ceres, crispum and hybrids in variety, Oncidium tigrinium, and Cypridiums of sorts.

Mrs. A. K. Wood, Glossop (gr. Mr. Gould), was awarded a Silver-gilt Medal for a very pleasing display, including Cattleyas in variety, Læliocattleyas, including Orion, Oncidium tigrinum, Cypripediums, and several plants of Vanda cœrulea—to one of which, Moorfield var., were awarded a Cultural Certificate and Bronze Medal to the gardener.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a nice group, to which a Silver-gilt Medal was awarded. It contained Cattleyas of the labiata section and hybrids, Odontoglossum crispum (fine forms), and hybrids, Cypripediums in variety, including Leeanum Clinkaberryanum, Euryades Warburtonianum, Thalia magnificum, and insigne in variety.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Large Silver Medal for a choice group, including Cattleya Portia superba (C.C. and Bronze Medal to gardener), Sophrocatlælia rubra, Odontoglossum rubrum, Bronze Dragon, amabile Triton, eximium, Adrianæ, Fascinator, crispum, Odontioda Bohnhoñæ, Cypripedium Priam, villosum, Sir Trevor, and Dendrobium Phalænopsus album.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), was awarded a Silver Medal for a small group of Cypripediums, including varieties of insigne and Leeanum, with tesselatum, Milo, and eboriacum.

J. McCartney, Esq., Bolton (gr. Mr. Holmes), was also awarded a Silver Medal for a group, including Cypripedium insigne Chantinii Lindenii, Laura Kimball, and Sanderæ, C. Hitchinsiæ, Arthurianum, and Mrs. J. McCartney.

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Gold Medal for a magnificent display of Cypripediums of the insigne section, in great variety, with C. Leeanum and hybrids, Cattleyas, Oncidiums, Cymbidiums and hybrids of same.

Messrs. Charlesworth & Co., Haywards Heath, were awarded a Silver-gilt Medal for a choice group, including Odontoglossum crispum xanthotes, and others, Cattleyas and Læliocattleyas, Cypripediums in variety, and Cymbidium erythrostylum.

Messrs. A. J. Keeling & Sons, Bradford, staged a few choice Cypripediums, including Sanacderæ, Hannibal, Maudiæ, Rossetti, and insigne Sanderæ Keeling's var., entirely without spots.

Mr. J. Evans, Congleton, staged Cattleya Amesiæ × callistoglossa, Odontoglossum hybrid, and Cypripedium Actæus Drewett's var.

FIRST-CLASS CERTIFICATE.

Cattleya labiata Cyme, a large well-set flower, with pure white sepals and petals, and faint colour in the lip. From Col. J. Rutherford.

AWARDS OF MERIT.

Cattleya labiata vestalis, Cypripedium Actæus ashlandense No. 2, and C. insigne Rossendale (i. Sanderæ × i. Laura Kimball). All from R. Ashworth, Esq., Newchurch.

At the meeting held on November 28th, 1912, the members of Committee present were: Z. A. Ward, Esq. (in the Chair), Messrs. R. Ashworth, J. Bamber, J. C. Cowan, J. Cypher, J. Evans, W. Hatcher, W. Holmes, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine group of Odontoglossums, Cattleyas, Cypripediums, Sophrocattleya Doris, Miltonia Bleuana, and other choice things.

Large Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); and Z. A. Ward, Esq. Northenden (gr. Mr. Weatherby); for fine groups.

Silver Medals were awarded to J. McCartney, Esq., Bolton (gr. Mr. Holmes); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); A. E. Penny, Esq., Preston (gr. Mr. Sumner); and Messrs. J. Cypher & Sons, Cheltenham; for good groups.

A large Bronze Medal was awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a small group of choice Cypripediums.

A Special Vote of Thanks was accorded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), for a magnificent and varied display of Cypripediums, including many specimen plants.

Interesting exhibits were also contributed by W. J. Hargreaves, Esq., Burnley: F. A. Hindley, Esq., Bradford: Messrs. A. J. Keeling & Sons, Bradford: Stuart Low & Co., Enfield: and Sander & Sons, St. Albans.

FIRST-CLASS CERTIFICATE.

Cypripedium Maudiæ var. John Martendale Gratrix, a large and handsome flower of brilliant colour. From S. Gratrix, Esq.

AWARDS OF MERIT.

Cypripedium Mary Gratrix (Æson giganteum × Leeanum Corona). From S. Gratrix, Esq.

Cypripedium Draco (insigne × Euryades) and Odontoglossum crispum var. Bulgar. From Z. A. Ward, Esq.

Cypripedium Strelsa (Alcibiades × insigne Harefield Hall var.). From W. R. Lee, Esq.

Cypripedium Bulgar (Parkerianum × insigne Harefield Hall var.). From Wm. Thom, junr., Esq.

Lycaste cruenta. From Messrs. A. J. Keeling & Sons.

BOTANICAL CERTIFICATE.

Eria (species unknown). From Messrs. A. J. Keeling & Sons.

At the meeting held on December 5th, 1912, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. Hanmer, W. Holmes, J. Lupton, D. McLeod, C. Parker, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

A Gold Medal was awarded to Mr. Rogers, gardener to O. O. Wrigley, Esq., Bridge Hall, Bury, for the fine group of Cypripediums exhibited at the previous meeting.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby): and Messrs. J. Cypher & Sons, Cheltenham, for fine groups.

A Silver Medal was awarded to J. McCartney, Esq., Bolton (gr. Mr. Holmes), for a good group of Cattleyas, Læliocattleyas, Oncidiums and Cypripediums.

Bronze Medals were awarded to F. A. Hindley, Esq., Bradford, and G. H. Peace, Esq., Monton Grange (gr. Mr. Mace), for groups of Cypripediums.

Interesting exhibits also came from H. Arthur, Esq., Blackburn; W. Thompson, Esq., Stone (gr. Mr. Howes): Messrs. A. J. Keeling & Sons, Bradford, and Sander & Sons, St. Albans.

AWARDS OF MERIT.

Cypripedium Lion (Boadicea × Sallieri Hyeanum), and C. Queen Maud (insigne Harefield Hall var. × ?). From S. Gratrix, Esq.

Cypripedium Cynosure (parentage unknown). From R. Ashworth, Esq.
Epidendrum vitellinum autumnale. From Wm. Thompson, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Masdevallia cucullata. From Messrs. A. J. Keeling & Sons.

CULTURAL CERTIFICATES.

Mr. A. Dalgleish, gardener to A. Warburton, Esq., for Cypripedium insigne MacNabianum.

Mr. J. Howes, gardener to Wm. Thompson, Esq., for Cypripedium Our King.

At the meeting held on Thursday, December 19th, 1912, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, J. Evans, J. Lupton, D. McLeod, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

Large Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Holmes); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); and Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for fine groups.

Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); F. A. Hindley, Esq., Great Horton, Bradford; G. H. Peace, Esq., Monton Grange (gr. Mr. Mace); Messrs. J. Cypher & Sons, Cheltenham; and A. J. Keeling & Sons, Bradford, for good groups..

Bronze Medals were awarded to H. Arthur, Esq., Blackburn, and the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for small groups of Cypripediums.

A Special Vote of Thanks was accorded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), for a choice group of Cypripediums, in well-grown examples, Odontoglossum crispum, and a fine plant of Lælia Gouldiana.

FIRST-CLASS CERTIFICATE.

Cypripedium Goliath (Amy Moore × insigne Harefield Hall var.), a magnificent, well-balanced flower. From W. R. Lee, Esq.

AWARDS OF MERIT.

Cypripedium Fouldsianum (Fascinator × Clinkaberryanum). From J. H. Craven, Esq.

Odontoglossum Wilckeanum var. From Z. A. Ward, Esq.

Cypripedium hybrid (King Edward VII. × insigne Harefield Hall var.). From A. Warburton, Esq.

LÆLIOCATTLEYA Goldfinch Ashlands var. (L.-c. warnhamensis × C. Dowiana aurea). From R. Ashworth, Esq.

Cymbidium woodlandense (Tracyanum × Mastersii). From H. Arthur, Esq., Blackburn.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during January, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting will be held on February 4th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 2nd and 16th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for February 6th.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at the meetings of the Committee are taken from the Official Report (continued from vol. xx. page 352) :—

November 5th : CATASETUM MACROCARPUM, FEMALE FLOWER.—Mr. G. Rae Fraser, Letchmore Heath, Herts., sent an inflorescence of Catasetum macrocarpum bearing six female flowers, from the same plant as the one exhibited on October 8th, 1910. He remarked that the plant has made three futile attempts to flower since then, and at the fourth had produced the present spike. Mr. R. A. Rolfe reported that it agreed with the plant figured as Monachanthus viridis, by Lindley, in the *Botanical Register* (t. 1752), from a plant which flowered with Lord Fitzwilliam, at Wentworth, which is now known as the female of Catasetum macrocarpum, Rich. It is not, however, the original Monachanthus viridis, Lindl., which is the female of another species.

November 19th : ONCIDIODA × MARJORIE. — Messrs. Charlesworth & Co. sent a plant resulting from a cross between Cochlioda Nœtzliana and Oncidium Forbesii. Several crosses between members of these genera have now flowered, and Messrs. Charlesworth were awarded a Certificate of Appreciation in 1910 in recognition of their work in demonstrating the possibility of uniting these genera, which, although sufficiently distinct morphologically, are evidently closely allied physiologically.

December 3rd : LÆLIA PUMILA × LÆLIOCATTLEYA OPHIR (Lælia xanthina × Cattleya Dowiana aurea).— Mr. G. Wilson said this hybrid with cream-white sepals and petals and purple labellum was raised by Mr. R. G. Thwaites, of Streatham Hill, and was shown by him in support of his hypothesis that white flowers are produced by a mixture of red, blue, and yellow.

HABENARIA RŒBELENII.—This is a very striking novelty which is now flowering with Mr. S. W. Flory, Orchid Nursery, Twickenham. It is a native of Annam, and is allied to the brilliantly-coloured H. militaris. The flowers of the two are very similar in general character, especially in the shape of the bright scarlet lip, but the novelty differs in having the sepals,

petals, the spur of the lip, and even the column and the two clavate stigmas bright red in colour. The first of the batch to bloom is bearing a scape about half-a-foot high, with six flowers, and several lanceolate, acuminate leaves, 3½ to 5 inches long by about half an inch broad, with a very undulate margin, and the colour nearly uniform olive-green. H. militaris, Rchb. f., is a native of Cochin China. The two other allies are H. rhodochila, Hance, a native of South China, and H. xanthochila, Ridl., a native of Penang.—R.A.R.

ORCHID PORTRAITS.

CATTLEYA DUPREANA THE DELL VAR.—*Gard. Chron.*, 1912, ii. pp. 450. 451, fig. 193.

CYPRIPEDIUM CALLOSUM SANDERÆ.—*Journ. Hort.*, 1912, ii. p. 565, with fig.

CYPRIPEDIUM DEMETER.—*Gard. Mag.*, 1912, p. 973, with fig.

CYPRIPEDIUM ELATIOR.—*Gard. Mag.*, 1912, p. 913, with fig.

CYPRIPEDIUM HERA VAR. EURYADES.—*Gard. Mag.*, 1912, p. 968, with fig.

CYPRIPEDIUM × LATONA.—*Gard. Chron.*, 1912, ii. p. 402, fig. 174; *Gard. Mag.*, 1912, p. 940, with fig.

CYPRIPEDIUM VIKING.—*Gard. Chron.*, 1912, ii. p. 463, fig. 201.

LISSOCHILUS ANDERSONII, ROLFE.—*Bot. Mag.*, t. 8470.

ODONTIODA LATONA FOWLER'S VAR.—*Gard. Mag.*, 1912, p. 960, with fig.

PHALÆNOPSIS INTERMEDIA PORTEI.—*Gard. Chron.*, 1912, ii. p. 455, fig. 193.

SOPHRO-LÆLIO-CATTLEYA THISBE.—*Gard. Mag.*, 1912, p. 993, with fig.

VANDA CŒRULEA LADY HOLFORD.—*Journ. Hort.*, 1912, ii. p. 513.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

A.E.B.—The fifteen parts of an Orchid flower are disposed in five whorls, three sepals; three petals, one modified into a lip by the addition of two stamens from whorl 3; three outer stamens, one being the ordinary stamen of the Monandræ or the staminode of Cypripedium; three inner stamens, two forming the anthers of Cypripedium or the wings or teeth of the column of the Monandræ, and the third usually modified into the crests of the lip; and three carpels, terminating above in the stigmas, one being modified into the rostellum, the other two either separate or confluent.

H.C.A.—Lælia rubescens.

G.F.S.—Catasetum Œrstedii, Rchb. f., Central America. Pleurothallis pedunclularis, Lindl., Brazil.

A.C.—Cymbidium Winnianum, a hybrid between C. giganteum and C. Mastersii. The original record (C. giganteum x eburneum) is now known to be erroneous.

Photographs received, with thanks.—W.J.P., J.T.B.

Several notes are unavoidably postponed till next month.

THE ORCHID REVIEW.

VOL. XXI.] *FEBRUARY*, 1913. [No. 242.

OUR NOTE BOOK.

"A BANK of wondrous flowers crowned by sweeping sprays of dainty blooms in every shade of white, yellow, mauve, lavender, blue; to the left another range of colour centred by vivid scarlet in profusion; on every side graceful artistic clumps of flowers soaring some twelve feet aloft; long ranges beyond in every shade of colour; some plants set amidst delicate ferns, others relying for background on their own restful natural foliage. The scene is the show of autumn-blooming Orchids connected with the Royal Horticultural Society's show at Westminster—a scene set amid a group of fashionable folk talking on every subject under the sun, from Orchids to hats and umbrellas. The show was one of the best of its class to be seen in the world, and showed the wonderful advance of the hybrid, which formed about two-thirds of the exhibition."

This cutting, for which we are indebted to a friend, was taken from *Bladud*, the Bath Society paper, for December 25th, and quite explains itself. The writer then inquires. "Why should more ladies not make the cultivation of the Orchid their hobby or their serious occupation? there could be no more delightful task. The taste is a growing one, the fashion of the flower makes conquests every day. The idea that extreme heat and care are necessary is quite erroneous in many branches. The Odontoglossum, for instance, which figures here so large, only needs a Cool house with an average temperature of 50°, plenty of fresh air, but no frost or fog. The work, too, has none of the gritty side of gardening, the potting is cleanly work, merely osmunda fibre and sphagnum moss. The reward is a feast of colour in the home such as no other flower can yield. The hobby is far more satisfactory than the present rage for the rock garden, and may be taken up at far less outlay."

The author was doing so well as a descriptive writer that it is a pity an incursion was made into history. He remarks: "It was Julius Linden who discovered the Orchid, and he is said to have nearly two hundred classes of this plant, divided into something like twelve hundred different

kinds." Perhaps he will look the facts up again in view of coming events. There will be the Ghent Quinquennial Show in April, the R.H.S. Spring Show at Chelsea in May, the Summer Show at Holland House in July, and another Autumn Show in November. It is hoped that the latter may become an annual event, for autumn-blooming Orchids are becoming more numerous every year.

From a note on page 61 it will be seen that the Orchid Committee of the R.H.S. has adopted a new rule with respect to disbudding, the effect of which is that Certificates may be granted to disbudded Orchids when the Committee is satisfied that the natural size and character of the flowers have not been changed by the removal of buds or part of the spike. The point will be difficult to prove, but the old rule was probably too stringent in the case of seedlings flowering before the plants had reached their full development.

A communication below calls attention to the recent discussion on the Nomenclature of Hybrids, and the evident misconception that prevails as to existing rules and their application. While dealing with the point raised we received another communication, and in looking up some records concerned we stumbled across a hybrid that was exhibited at Paris some time ago under the name of Odontioda crispo-Nœtzliana. We do not know whether the name of Odontioda Bradshawiæ for this hybrid was overlooked—its correctness is surely not called in question. A little earlier we had a batch of five described novelties to look up, and found that every one of them had already been named, fully recorded, and incorporated in the *Orchid Stud-Book*. It is this sort of thing that makes one despair of keeping intelligible records.

NOMENCLATURE OF ORCHIDS.

AN important point arises out of the "Echoes of a recent discussion" (pp. 21-24). Those who read the discussion in the original in the *Gardeners' Chronicle* will have noticed that there is the widest misconception, both as to the object of nomenclature and the application of existing rules. And if this is the case among those who ought to be the leaders of thought in this matter, what can be expected of the rest of us who have to apply the rules occasionally to our productions? It would be appropriate if a short note illustrating the application of the rules could be published for our guidance. At present we do not know where we are.—HYBRIDIST.

[We are in a state of almost hopeless confusion, and the greater part of it arises from neglect of the rules, which are really very simple. One cannot deal with the matter in a short note, but we may point out that

most of the difficulty centres round the specific name. The rule provides that the specific name of a hybrid (as of a species) shall consist of a single word, two short words being permissible when they can be joined by a hyphen. Varietal names can then be added as necessary. The latter are not limited to a single word, though here also short names are recommended. Cattleya Jonesii is correct, but Cattleya John Jones (or Mrs. John Jones) is not correct—at all events if applied to a primary hybrid. Occasionally we get such names as Cattleya John Jones fulgens, which is incorrect, and looks as if the varietal name had got in front of the specific. Another point provided by the rules is that incorrect names are to be rejected, dropped, or modified (the latter meaning put into correct form). This rule has been completely misunderstood, as we have already seen. The question of the name of generic hybrids, which also figured prominently in the discussion, can be dealt with in a sentence. Such names as Zygo-Colax and Sophro-Cattleya are not in accordance with the rules. They were originally written Zygocolax and Sophrocattleya, which is the correct form. The rules are perfectly explicit on these matters, and we appeal to hybridists and recorders to adopt them.—ED.].

WATER FOR ORCHIDS.

AN American correspondent writes:—"We are using the water from the Missouri River, and the City Authorities use chemicals for cleaning the water. I saw the City Chemist, and was informed that while they use alum and chloride of lime for the purifying process the water is not injurious to Animal life. The water as we get it contains 200 parts of lime to 1,000,000 gallons, or 12 grains of lime to 1 gallon of water. I would ask if this amount can hurt the Orchids? The Cypripediums seem to be doing quite well, but all the epiphytes are not looking so well as two years ago when less chemicals were used and the water was almost always dirty. I have read your valued paper for several years but very little is said about the water used for watering. Is it a general rule to use rain water exclusively for Orchids? I shall thank you very much for some light on this subject."

[Rain or soft water is invariably recommended for Orchids, and in many cases tanks are specially provided for storing the rain water collected from the roofs. The hard water of some districts is distinctly injurious to Orchids, and in such cases it is generally only used for damping down. River water is seldom as hard as well water, and if the latter contains lime it is injurious to epiphytal and humus-loving Orchids. We do not know how far the purifying process mentioned will affect the value of the water for Orchid culture, and should be glad to receive the experience of our readers.—ED.]

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

THIS month is rather a trying one for beginners in Orchid culture, for we experience much variability in respect of the weather, cold winds often being accompanied by bright sun or damp, chilly days, and these following each other in succession. Such climatic conditions render the matter of ventilating rather difficult, and it is a point upon which no set rules can be given, but must be left almost entirely to the good judgment of the amateur. A few suggestions can only be given. Ventilate as soon as the thermometer rises several degrees above 58° Fahr., and be careful to open only those ventilators which are situated on the side of the house well away from the prevailing wind. The main secret of success in growing Orchids is to maintain a damp atmosphere at all times, and therefore do not open the ventilators so widely as to cause all the moisture to evaporate from the house. It is yet too early to begin any repotting, and watering should be practised as advised in the article for last month.

Cypripediums will now be mostly over. These, without doubt, are the Orchids *par excellence* for a small house, for they flower freely, remain a long time in bloom, and small plants soon increase in size and make many strong flowering growths. A good dozen, requiring 50° Fahr. as a minimum, would comprise C. aureum, Boxallii, Calypso, Euryades, Harrisianum, Leoniæ, Leeanum, nitens, Sallieri, Spicerianum, villosum, and any variety of insigne. But there is now a long list to choose from, and all the insigne hybrids will succeed under the treatment mentioned, and they form the majority of the winter-flowering kinds.

WONDERS OF HEAT AND MOISTURE.

THE wonders of solar heat and moisture were recently discussed by Sir James Dewar in a lecture at the Royal Institution. Speaking of the solar radiation in tropical places, Sir James said that in six hours about four-tenths of a square mile received heat equivalent to the combustion of 1000 tons of coal; while an area of 1300 square miles got in one year heat equivalent to one billion tons of coal—the whole estimated coal output of Europe and America. Between the months of April and July, a field of wheat transpires sufficient moisture to cover the surface of its ground to a depth of nine inches. Another interesting fact is that it requires $3\frac{1}{2}$ lbs. of water to produce 16 grains of corn. The famous vine at Hampton Court, which has a leaf surface of 1820 square inches, gave off in twelve hours two-fifths of a pound of water. It would be very interesting and instructive if the problem could be extended to cover the field of Orchid culture, in which heat and moisture are such important factors.

THE ROMANCE OF ORCHID HUNTING.

AN "Orchid Collector" writes to the pages of *Horticulture*:—"Mr. P. Harvey Middleton has written a very interesting article about Orchid Hunting in the *American Homes and Gardens Magazine*. The narrative is very charming, but he has been so grossly misinformed that the whole thing appears to be a 'Fairy Tale.' It is a very peculiar circumstance that very few people can write about Orchid collecting without letting their wild imaginations work wonders, which they spring on the man who later takes those fibs as truths, and adorns them with his florid language. In the article in question there is a reference to a typical example of the kind of stuff that Orchid hunters are made of.

"He has been at death's door with the fevers of the tropics and tropical swamps, he has been robbed and deserted by his guides and left alone to starve in Andean mountain forests, and has been attacked, tormented and all but eaten by hundreds of big black ants. He has had to fight treacherous guides for his life, and has had escapes too numerous to describe.

"It was while engaged in hunting Orchids in Colombia for the Philadelphia Orchid Queen that a revolution broke out. Barrault was seized by Colombian soldiers and forced to fight for them. . . . Philosophically accepting his fate he led a regiment of the Colombians to battle . . . fell severely wounded, and panic seized his followers who turned and fled.

"And so Barrault, the Orchid-hunting soldier, was thrown into prison by the rebels and there left to get well as best he could. Slowly, but surely, his fine constitution pulled him around, and one night about six months later he floored his guard and got away. Two days and nights brought him to the forest, where he knew rare Orchids were to be found. Living on roots and herbs that former experience had taught him were good for food, Barrault gradually worked his way through the forest until he came to a lonely village off the track of the opposing armies. Here he secured another set of guides and started off on the trail of a wonderful snow-white Orchid which had been graphically described to him by a half-naked Indian in the streets of Bogota—'An Orchid so big,' said the native, clasping hands and rounding arms, 'and as white as snow on the mountain tops. I will take you to it.'

"Barrault headed an expedition, that was fraught with many adventures, to the mountain haunt of the marvellously big flower. Hardly had he started before the first of them occurred. Barrault's saddle girth broke as his mule was stepping gingerly along a narrow mountain path at the edge of a two thousand foot precipice, over which the Orchid hunter promptly disappeared. He was caught in a tree growing out of the side one hundred feet below, and after his guides, peering cautiously down the chasm, had recovered

from their dismay, a rope was lowered and he was hauled back to safety, none the worse except for a few scratches.

"They arrived without further mishap at their destination, two weeks later, and were soon hard at work collecting the Orchids, which grew in great profusion. Then swamp fever struck the camp, and one after another the guides fell ill, so that Barrault had to give up his beloved Orchids and turn nurse. Then he, too, caught the fever, and was prostrated for days. Some of the guides recovered before he did and, taking advantage of his helpless condition, stripped him of his possessions, including the Orchids, and left him alone in the forest. In his weakened state it took Barrault a week to work his way out of the dense gloom of the forest, guided to some extent by the almost overgrown path his expedition had hacked through the undergrowth. But at last he reached a cluster of huts and rested for a week. Then, with the determination of a man who never knows when he is beaten, he set to work organising another expedition. 'It was during this trip,' wrote Barrault, 'that with two guides I stumbled into an army of big black ants. Before we could escape they swarmed all over us from head to foot. It was half a mile to the nearest forest stream—a half mile covered with dense undergrowth. Frantically we crawled our way to the water, suffering agonies from the bites of the infuriated ants, and when, after what seemed years, we reached the stream's brink, we barely had strength left to fling ourselves into the water.

"Barrault's heart was still set on the possession of that beautiful snow-white flower. He had the remnant of Mrs. Wilson's gold in belts strapped to his body, and the party had not proceeded far when half-a-dozen of his redskin followers conspired to kill him in order to secure this money, which he had been forced to show them in order to obtain their services.' . . . (Of course there was another fight, in which those who were not wounded were put to flight).

Another writer in the *New York Herald* tells moving stories about Mr. Benson and his forty Indians, their journeyings, the desertion or death of his followers, the impossiblity of climbing the trees on which the Orchids grew because of poisonous green snakes hidden in the foliage, the overturning of his canoe by alligators, which made off with one of the Indian guides, when, of course, he got lost in the forest and wandered about for two days without food.

"The writer does not believe that either one of the collectors mentioned told the stories as published. Some reporter let his mind wander and manufactured tales that went into print. If they ever heard these stories and contradicted them is something that I do not know of. If the wonderful exploits would refer only to green or blue snakes, tremendous precipices, dense undergrowth, armies of black ants, swamp fevers, and pitched battles of

one hero against a lot of Indians, the stories would not be harmful, and, except for their inaccuracy they would seem interesting. But when the collectors wilfully and maliciously slander the natives as 'thieves and assassins' it is time to put a stop to such talk.

"In no country on the face of the earth is property more respected and life more secure than in the countries where these collectors go. There is as much danger of snakes and other animals there as there is in any place in New Jersey and New York, and the climate where the commercial Orchids grow and are collected is far better than any climate in the north and simply delicious.

"It is peculiar that all the 'green collectors' or the new starters are the manufacturers of these wonderful stories. We have not seen men like Lager, Bungeroth, Forget, and other collectors of their calibre tell stories of the kind we have read as told above.

"It is well for all to know that Orchid-collecting is not such a dangerous undertaking; that heroes are not forced to take arms and fight the rebels in any country, and that they only do it in dreams; that it is very seldom, that a man can see a snake; that Orchids do not grow in the jungle or in deleterious climates; that the natives do not rob the collectors in any way, and that they are as honest as the collectors themselves. That no collectors go into the forests to gather the plants except the natives; that the armies of dangerous black ants are the products of feverish inagination, and that the search for the 'Snow-white Orchid,' is nothing but one of the pretty little fibs given to ignorant readers.

"I will take later on the description of Orchid-collecting as it is done, and meanwhile I hope that the collectors will endeavour to give true accounts of their experiences, and especially to be careful about slandering the natives from whom they receive so many favours and who work so faithfully for them.—A COLLECTOR."

LÆLIOCATTLEYA AMARYLLOSO.

I SEND a couple of flowers from a Læliocattleya seedling which has been in my possession during the last three years and has just flowered. Cattleya Harrisoniana appears to have been one of the parents. The bulb that has just flowered (three blooms) is about twelve inches long, and bears two rather narrow leaves, about eight inches long. May I be allowed to congratulate you upon the extremely interesting notes contained in the *Orchid Review*.

HENRY R. STERRETT.

"Elgin," Alexandra Road, Heston-Hounslow.

[From the light yellow colour we believe it to be a form of L.-c. Amarylloso (C. Harrisoniana × L. flava). The influence of the former is unmistakable in the shape and undulation of the lip.—ED.]

EPIDENDRUM ENDRESII.

EPIDENDRUM Endresii, here represented, is one of the most charming little Orchids imaginable, but, unfortunately, it has become very rare in cultivation. It is a native of Costa Rica, and was discovered by Endres, who, however, failed to send it home alive. Some few years after, the late Consul F. C. Lehmann succeeded in transmitting a few living plants. It was described by Reichenbach in 1883 (*Gard Chron.*, 1883, i. p. 432), and was afterwards figured in the *Botanical Magazine* (t. 7855). The stems are about six to nine inches high, with verrucose sheaths, and the flowers are

Fig. 17. EPIDENDRUM ENDRESII.

whitish lilac with a little purple on the lip and column. Very little is known about its habitat, except that it is a mountain plant, and we suspect that the loss of the plants, which a correspondent deplores, is due to their having being grown in too much heat. Some time ago we saw it grown with success at Harefield Hall in the Odontoglossum house, and Mr. Ashworth considers that this is the most suitable climate for it. Hybridised with Epidendrum Wallisii it yielded the pretty little E. Veitchii, and this is said to have been recrossed with E. Endresii by Messrs. Sander, yielding a batch of seedlings showing remarkable variation, and including forms with purple, yellow, and spotted segments (*O.R.*, xiv., p. 181).

THE ORCHID REVIEW.

The accompanying illustration represents the twenty completed volumes of the *Orchid Review*, with the companion volume, the *Orchid Stud-Book*, and is reproduced from a photograph by Mr. F. W. Rolfe, of the Editor's working

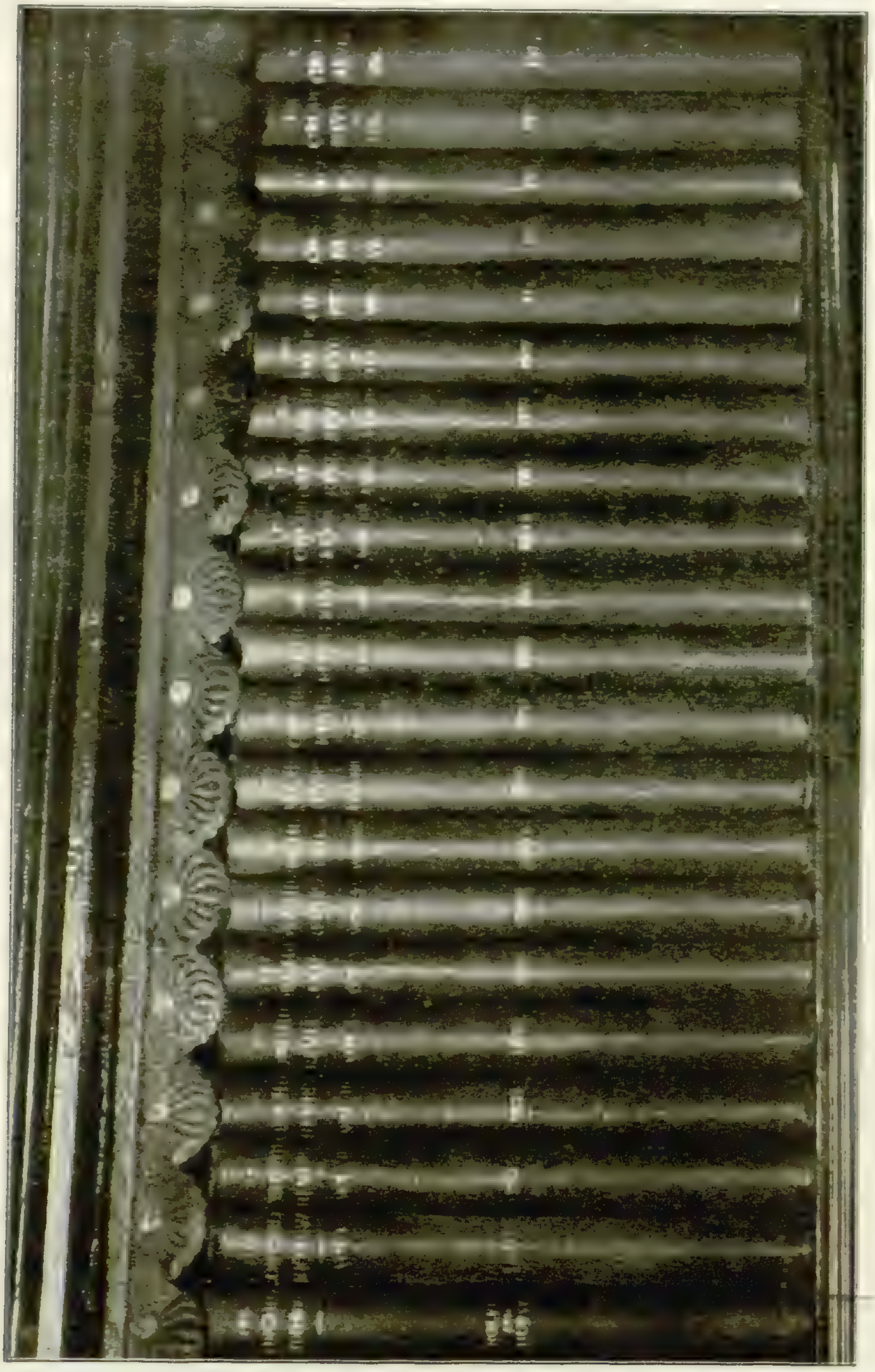

Fig. 18. The twenty volumes of "The Orchid Review," with "The Orchid Stud-Book."

copy. Some of our readers have a similar set on their own library shelves, and the figure will probably interest those who have welcomed the proposal to prepare an index to the work. It represents a library of Orchid literature, extending back to the earliest days of Orchid cultivation and hybridisation.

ORCHID BREEDING.

As a hybridist who has worked on the principle of crossing plants with a view to their improvement, it is rather disconcerting to be told that we have been working on the wrong lines. We have not taken into consideration a mysterious something called the "principles of genetics." We could distinguish characters that we wished to perpetuate, to combine, or to modify, but we failed to ascertain beforehand whether they were heritable or not. The result is a crowd of failures, and it is even suggested that the only safe method to adopt is to make a fresh start. A plant may be homozygous for one character, heterozygous for another, and zerozygous for a third character, and so on, but each individual plant has a definite germinal, or gametic constitution, which can be ascertained by cross-breeding it with other plants. In this way a factorial analysis of the plant can be made. All future breeding from that plant is reduced to practically a certainty. But how about the heritable characters of the other plant with which it is crossed? A little earlier we had been told that it all depended on whether the plant had a double dose of the desired character or not. How am I to set about finding these heritable characters and separating them from the undesirable characters that may also be heritable? —HYBRIDIST.

In our opinion the whole argument is based upon a fallacy. Species are homozygous, *in all their characters*, until crossed—that is to say they come true from seed. They have a double dose of all the characters, if the fact must be stated in these terms. The trouble does not arise with the plant, but with the hybridist, who mixes the characters, thus producing hybrids, whose characters are necessarily heterozygous. The remark about a double dose of a given character simply means that the said character is present in both the parents, and like produces like. A plant that is homozygous when crossed with another that possesses a similar character will be heterozygous when crossed with one possessing a different character, but a single character does not make a plant, and hybridists invariably work for several characters at the same time. Suppose a yellow Cattleya is the desideratum. That colour must be combined with, let us say, size, shape, and constitution, if the hybrid is to be what has been termed a "winner." "Genetics" is simply a convenient term for everything that concerns the science of heredity, and hybridists have been studying it from the time that the intermediate character of the first hybrid was observed. What hybridists have to do is to keep their eyes open and conduct their experiments according to their experiences and those of their fellow-workers. They must continue to "use the best individuals of the best varieties of the best species of the best genera"—yes, and the best hybrids, too, even if

their Mendelian friends tell them that that is only the application of genetics to Orchid breeding.—ED.]

ORCHIDS: A GOLD MEDAL GROUP.

WE have received from Mr. Edward Clement, Maidstone, a photograph of a fine group of Orchids which gained a Gold Medal at the Maidstone Chrysanthemum and Flower Show held in November last, together with a cutting from a local paper. Our readers will probably remember the very interesting notes from Mr. Clement which appeared at pp. 8 and 43 of our last volume. Mr. Clement writes: I have continued to persevere, and early last spring put up another small greenhouse, 10 feet by 8 feet, quite a home-made affair, but it seems to answer the purpose. My little collection now numbers about 220 plants. We still have no gardener, and the work is entirely done by my wife and myself; moreover it does not interfere with my hours at business or my wife's domestic duties. The newspaper cutting is as follows:

"Mr. Clement's exhibit of Orchids was one of the features of the show, forming a tastefully arranged bank at the market buildings end of the Corn Exchange. To the ordinary observer Orchids are Orchids, but the true Orchidist revels in classification, and to the initiated this beautiful bank of blooms, peeping out from a setting of ferns and palms, as well as their own foliage, resolved themselves into Cattleyas, Cattleya hybrids, Læliocattleyas, Odontoglossums, Odontoglossum hybrids, Epidendrums, Cypripediums, Cypripedium hybrids, Vandas, and Odontiodas. The group attracted much interested attention, and the judges readily awarded it the Gold Medal. The gem of the collection was the hybrid Cypripedium Baron Schröder, which was conspicuous for shape and beauty, and particularly for its rich, dark colouring. Several of the "baby" Orchids were in flower for the first time, the blooms never having been seen before in this country. To Mr. and Mrs. Clement, who had tended the plants with so much care and attention, the greatest credit is due, and in this connection it may be pointed out that Orchid-growing does not involve grave difficulties in cultivation, the installation of expensive or elaborate equipment, or the employment of a gardener with expert knowledge of the art. Mr. and Mrs. Clement have raised their plants in quite ordinary glass houses, unaided by costly apparatus. Constant care, intelligent application, and enthusiasm have won for them the success they deserve."

The photograph shows a very effective group and some well-grown examples, which can be readily identified by the aid of a lens. Mr. and Mrs. Clement must be congratulated on their success, and it should encourage others who have commenced the delightful hobby of Orchid-growing with inexpensive appliances.

INTERESTING ORCHIDS AT KEW.

SEVERAL noteworthy Orchids are now flowering in the Kew collection. Hæmaria discolor is a beautifully sweet-scented Chinese species, having dark velvety olive-green leaves and a dozen spikes of pure white flowers, with a yellow blotch on the lip, forming a very pretty picture. Its culture is not difficult. Brassocattleya Lindleyana is an interesting Brazilian plant, which is believed to be a natural hybrid between Brassavola tuberculata and Cattleya intermedia, between which it is fairly intermediate. Gomesa recurva is a rare Brazilian epiphyte, with a raceme of about twelve inches long, and yellowish green flowers with undulate sepals and petals, and a red marking on the column, which shows up rather distinctly.

Aërides Vandarum is a very distinct and interesting Orchid, although not very floriferous. In habit it resembles Vanda Kimballiana, and the flowers are white and borne on a short peduncle in the same way as Vanda teres. This plant requires Cool house treatment. Dendrobium amethystoglossum is an interesting, but not by any means a showy Dendrobium. The flowers are borne in pendulous spikes, and the lip is amethyst-coloured, with a rather long somewhat swollen spur. The beautiful Miltonioda Ajax (M. Schœderiana × C. Nœtzliana), is also in bloom, the sepals and petals being crimson-red and the lip yellow.—L.

FRANK ASHTON RELIEF FUND.—A small Committee of Orchidists has been formed to assist Mr. Frank Ashton, who has unfortunately fallen into indigent circumstances, and who is no longer able to follow his employment as a traveller in Orchids. He has been struggling against fate for the past two or three years, but has at last been compelled to give up owing to a very badly poisoned foot, to attacks of chronic rheumatism, and to an affection of the eyes. He is no longer able to travel, and his resources are practically at an end. An appeal is therefore made to all those who have been associated with Mr. Ashton in the Orchid business to show their practical sympathy with him in his great affliction by contributing towards a Fund which will be utilized to establish him in some small home business. The Kew Guild (of which Mr. Ashton is a life member) has generously made a grant of £5 towards the Fund. The Committee consists of Messrs. J. McNab, Sander & Sons, D. A. Cowan and A. G. Ellwood, of Charlesworth & Co., and J. Weathers, Isleworth, but Mr. Harry Smith of Haywards Heath, and Mr. Cooper of St. Albans, have also been consulted. Further donations may be sent to the Secretary of the Kew Guild (Mr. Herbert Cowley, South Side, Kew Green), or to me, and will be gratefully acknowledged on Mr. Ashton's behalf. John Weathers, 7, Talbot Road, Isleworth, Middlesex, (Secretary).

CALENDAR OF OPERATIONS FOR FEBRUARY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

WITH the present month the year's work practically begins, and as we may yet experience some severe weather, everything should be kept as quiet as possible. Nothing will be gained by unduly pushing anything into growth, for such growth is puny and unsatisfactory. For all matters relating to temperatures, watering, atmospheric conditions, and cultural hints generally, last month's remarks are still applicable. On bright days, however, a slight increase in temperature by sun heat will be beneficial.

During the changeable weather sometimes experienced at this season considerable attention must be given to the ventilation of the houses, as it is essential that they should be constantly supplied with fresh air without excessive fluctuations being permitted. During spells of clear frosty weather the sun will have much power, and scorching may easily result if the ventilation of the houses does not receive proper attention. The plants will also take up more water, but this must be given with discrimination, as it is much easier to make the compost too wet than it is to get it dry again.

POTTING.—This important operation must now be taken into consideration, and everything which can safely be taken in hand should have attention, so that at a later season there may be no undue rush, or the work may not be done as thoroughly as it should be. Thoroughness in everything is the talisman of success.

COMPOST.—A supply of the various potting materials used should be kept in stock, so that it may be in the desired condition when required, neither too wet nor too dry. The different fibres may be pulled or chopped ready for use, so that when the busy season is upon us we may dispose of the time at our disposal to the best advantage. If the different plants are not repotted at their proper seasons they get an unnecessary check, which may prove most harmful. Speaking of composts, I would advise that drastic changes as regards this matter should be made with great caution, as not only has the plant to take hold of the compost, but the watering is quite different in many cases. A continual change of rooting material is a source of trouble and much anxiety.

CATTLEYAS.—C. Trianæ and C. Percivaliana, with any hybrids that have flowered during the winter months, may be repotted if they are pushing, or are about to push new roots. A suitable compost for the whole family is made up as follows: Two parts osmunda and peat fibre, one part AI. fibre and sphagnum moss, all well mixed together. All the fine particles must be carefully removed from the compost. If plants of Cattleya Warneri, C. gigas, Lælia Boothiana, and L. crispa are in need of

new rooting material they may have attention, but the best season for potting these plants is immediately after blooming.

MEXICAN LÆLIAS that are in need of new compost should have attention as soon as the new roots begin to push.

CYPRIPEDIUMS, as they pass out of flower, should be repotted if the compost is at all decomposed, or if the plants are in need of larger pots. The compost given last month will answer their requirements.

DENDROBIUMS of the nobile section which are showing for flowers may have water afforded them in more liberal quantities as soon as the flower buds are about half developed. It is a good practice to thoroughly clean and overhaul these plants before the flower buds get any size, as there is danger of many getting damaged in the operation. These plants open their blooms quite satisfactorily in a temperature of about 60°. In a lower temperature the flowers are stunted, and in a higher one they are forced out too quickly. Among present day growers these Orchids appear to have lost favour, from what reason I am at a loss to understand, as, when in full bloom, if well grown, there are few things to compare with them for effect.

CYMBIDIUMS, that are pushing up their young growths, and any others that are in need of repotting, should be attended to when they are seen to be pushing new roots from their base. They do not like disturbing, and if the compost is not decomposed, and there is room for the new bulbs to develop, it will be wise to defer this operation until next season, as they bloom more freely when in a pot-bound condition. The species and hybrids of this useful genus delight in a cool position in the Intermediate house, but must not be subjected to the direct rays of the sun at any time. Red spider, which sometimes attacks the leaves, especially if grown in a dry position, must be destroyed by sponging from time time with a weak solution of insecticide. These plants will succeed in a similar compost to that used for Cypripediums, and should be potted in the same way. Those that are now pushing up their flower spikes may have attention at a later date. They should have water afforded them whenever they become dry.

ONCIDIUMS of the winter-flowering varieties, as they commence to grow and produce roots, may be repotted. It is essential to keep the rooting material in a sweet and healthy condition, and if the compost is worn out it is advisable to renew it. The compost used for Odontoglossums is suitable, and is made up as follows: peat, polypodium, and osmunda fibres, and sphagnum moss in equal proportion, with a moderate quantity of leaves. They are best grown in shallow pans suspended from the roof. Most of these Oncidiums enjoy an Intermediate house temperature, but such species as O. Papilio, Kramerianum, Lanceanum, and Cavendishianum do best in the Warm house.

MILTONIAS.—Plants of Miltonia vexillaria, M. Bleuana, and M. Hyeana

will now be growing freely, and those that are well rooted may have water afforded them whenever they become dry. They may also have more air whenever the climatic conditions will allow of it with safety. Many of the Brazilian Miltonias, as M. spectabilis and its variety Moreliana, M. Bluntii Lubbersiana and others will now be developing new roots, and those in need of new compost should have attention. It is important, in repotting, that the young roots are not injured, as they are very tender and are easily broken. They will succeed in the same compost as Oncidiums, and are best grown at this season in the Intermediate house.

AËRIDES AND SACCOLABIUMS.—Any plants of these genera, when showing signs of renewed root action, may have attention as regards repotting or resurfacing, should the moss be at all decomposed or in an unsatisfactory condition. Aërides succeed grown in pots, while the smaller Saccolabiums are more satisfactory in shallow pans, or teak wood baskets, suspended from the roof. The receptacles should be well drained, and clean live sphagnum moss is the best rooting medium. The moss must be pressed into the receptacles moderately firmly, as it is desirable that it should grow, and when placed in loosely it often fails to do so. Plants that are not in need of repotting may have the old material carefully removed from their roots, and the new substituted. Such species as A. odoratum, Lobbii, virens, Fieldiugii, Lawrenceæ, and Sanderianum, with all the Saccolabiums, will be best grown in the Warm house. A. Lindleyanum, A. crispum, A. crassifolium and A. Warneri delight in an intermediate temperature.

MASDEVALLIAS that are in need of fresh material at the root, may at this season have attention. Any of the stronger growing kinds, such as M. Harryana, ignea, and any of the hybrids that did not receive attention in the autumn may now be potted, should it be requisite. These strong-growing plants are best grown in pots: the smaller varieties in shallow pans, suspended well up to the light. As a rooting medium I use for the strong growers a compost as follows: equal parts peat, polypodium and osmunda fibres, and sphagnum moss, with a fair quantity of half decayed leaves, and half a part of good yellow loam fibre. For the smaller growers the latter is left out. M. tovarensis, with others of the same nature, should be repotted at this season just as they commence to grow. They should not be potted too firmly, as their roots are not capable of pushing through hard masses of material. These are best accommodated at the warm end of the Cool house at all times.

CŒLOGYNE CRISTATA and its varieties are now pushing up their flower spikes and must be afforded sufficient water to keep the pseudobulbs plump and the roots healthy, or the flowers will be weak and puny, and their flowering will be of short duration. They should not be forced too rapidly

into bloom. After flowering they should receive a short rest, when they will break into growth more vigorously.

ODONTOGLOSSUMS should have their flower spikes secured neatly to stakes as they develop, as if allowed to lie upon the tops of the pots they easily become a prey to slugs and other pests. Slugs at this season are most destructive to the young tender flower spikes, and must be searched for diligently and destroyed. O. grande and O. Insleayi are at rest, either in the Mexican or the warm end of the Cool house, and will require little water until growth has again become active.

SHADING.—Towards the end of the month it will be advisable to have all the shading in proper working order, as such plants as Aërides, Phalænopsis, Angræcums, Cypripediums, Zygopetalums, and many others are easily disfigured by the sun's rays, and in some cases it takes a long time to get rid of this disfigurement. It is therefore advisable to have everything fixed and in readiness in case of bright sunshine. Permanent shading on the glass is harmful. Roller blinds are indispensable in Orchid culture if the best results are to be attained.

GENERAL REMARKS.—A continual warfare must be waged against all pests, in fact against everything which interferes with our reaching the goal of our ambition. Keep the temperatures normal, give air on all favourable occasions, and water whenever the plants require it. They will then follow their normal course, resting, growing and flowering in their proper season, and the careful and observant grower will soon come to understand their requirements.

SOWING ODONTIODA SEEDS.

I HAVE ripened some Odontioda seeds, which I wish to sow. Should it be sown immediately after ripening, or should one wait; if so how long? Also what is the best method of sowing?—G.G.O.

The best plan is to sow part of the seeds at once and keep the remainder till the weather is a little more genial, say about the end of March. The seeds should be scattered thinly on the compost of Odontoglossums or Odontiodas that will not require potting for some time, first removing any sphagnum that is likely to overgrow the seedlings. There should be a little leaf-mould on the compost. The warmest corner of the house should be selected, and the seed beds should be shaded from direct sunshine, and never be allowed to become dry. Great care should be exercised in watering or dipping not to wash the seeds away, and it is best to keep the surface moist by means of a sprayer. The seeds begin to germinate almost at once, and under suitable treatment steadily progress until the first leaf appears, when they can be pricked off in the usual way. The subsequent treatment presents less difficulty.

LÆLIOCATTLEYA GLADIATOR.

Fig. 19. LÆLIOCATTLEYA GLADIATOR.

THE annexed figure represents a fine specimen of Læliocattleya Gladiator (C. Mossiæ × L.-c. callistoglossa), which was exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), at the Royal

International Horticultural Exhibition held at Chelsea in May last, and received an Award of Merit (*O.R.*, xx. p. 194). It is a very handsome hybrid, the flowers being of excellent shape, and the sepals and petals deep rosy lilac, while the broad undulate lip is well crisped, and the colour rich crimson, with some yellow on each side of the throat and some darker lines at the base. As will be seen by the figure, reproduced from a photograph by Mr. F. Waldock, the plant bore ten flowers, and produced a fine effect. Læliocattleya Gladiator is derived from Cattleya Mossiæ, C. Warscewiczii, and Lælia purpurata, and one can hardly conceive a more promising combination, the parent species being among the most popular of garden Orchids.

ONCIDIUM CARDIOCHILUM.

A VERY interesting Oncidium was included in the group exhibited by Messrs. Sander & Sons at the Royal Horticultural Hall, on November 5th last. On comparison it proves to be O. cardiochilum, Lindl. (*Fol. Orch.*, Oncid. p. 27), which was based upon wild specimens collected in New Grenada by Purdie, and in Guatemala by Skinner. Lindley placed it in his section Pentapetala macropetala, and described it as "a fine species, with a singularly entangled branching devaricating panicle. Flowers as large as in O. rupestre or O dontoglossum hastilabium. The Guatemalan form has a much thinner panicle, but does not seem to be different otherwise." The species does not appear to have been figured, and I can find no evidence of its previously having been in cultivation. It has a large lax branching very flexuose panicle, with numerous flowers about 1½ inches across. The sepals and petals are brown, and acuminate, and the lip yellow, broad, and very deeply pandurate, with a rather elongated, somewhat tubercled crest, while the column wings are practically obsolete. It agrees best with the New Grenadan form of the species--the one sketched by Lindley on his Herbarium sheet, which may be regarded as the type of the species. Messrs. Sander are not quite sure whence they obtained their plant.

R. A. ROLFE.

ARACHNANTHE MOSCHIFERA.—Under the title "An Extraordinary Orchid" the *Strand Magazine* for December illustrates a flower of this remarkable species. The photograph was sent by Captain H. L. F. Vanger, Weltevreden, Java, who remarks: "Although one would imagine this to be a big spider or scorpion, it is a photograph (three-quarters of the real size) of the flower of the Scorpion-Orchid—an Orchid that even here in Java is not very common." We may add that the species is a native of Java, Borneo, and the Malay Peninsula, and the name "Scorpion Orchid" is said to be the one by which it is known to the natives.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Committees was held on December 17th to adjudicate upon plants submitted for Certificate, when many fine Orchids put in an appearance, and the awards consisted of two First-class Certificates, eight Awards of Merit, one Lindley Medal, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), de B. Crawshay, Gurney Wilson, Stuart Low, W. Bolton, F. J. Hanbury, H. G. Alexander, A. Dye, A. McBean, T. Armstrong, J. E. Shill, C. H. Curtis, J. Charlesworth, W. H. White, and Sir Harry J. Veitch.

CYPRIPEDIUM DEMETER (G. F. Moore × Earl of Tankerville).—A very fine hybrid, having the dorsal sepal white above the green base, with some very large claret-purple blotches, and outside these a zone of smaller rose-purple spots, while the broad petals and lip are light yellow, much suffused with purple-brown. Exhibited by Lt.-Col Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander).

SOPHROCATLÆLIA THISBE (C. Iris × S.-l. heatonensis).—A brilliantly-coloured hybrid, most like the Cattleya parent in shape, and the colour very dark crimson, with a rather lighter throat. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

AWARDS OF MERIT.

CATTLEYA TITYUS (Enid × Octave Doin).—A finely shaped flower, having rosy sepals and petals, and a very broad, crisped-undulate, rosy crimson lip, with a light yellow disc. Exhibited by H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day).

CYPRIPEDIUM IDINA (insigne Harefield Hall var. × Countess of Carnarvon).—A fine hybrid, most like the former parent, but the scape dwarfer, and the dorsal sepal very short and broad, white, with a green base and lines of purple dots. Exhibited by Messrs. James Veitch & Sons.

CYPRIPEDIUM SIR WILLIAM CHANCE (Thompsonianum × memoria Jerninghamiæ).—A very handsome hybrid, having a slightly concave, white dorsal sepal, with a broad, somewhat branched band of claret-purple from the base, and the petals and lip honey yellow, suffused with purple-brown, the petals also bearing a dark central line. Exhibited by Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins).

ODONTOGLOSSUM EXIMIUM var. J. Lakin (armainvillierense × crispum).—A very handsome form, copiously blotched with reddish violet on a white ground, and tinged with purple on the back of the segments. Exhibited by Mr. E. H. Davidson, Orchid Dene, Twyford.

ODONTOGLOSSUM JASPER FOWLER'S VAR. (crispum Victoria-Regina ×

amabile).—A finely-shaped flower, having rosy sepals and petals blotched with claret red, and the lip white with reddish blotches and a yellow crest. Exhibited by J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis).

ODONTOGLOSSUM SCINTILLANS ORCHID DENE VAR. (Rossii × Wilckeanum).—A handsome form, having the petals white, blotched with claret red below and tinged with rose above, the sepals covered with dark blotches, and the lip dark rosy lilac, with a white disc and a reddish blotch. Exhibited by Mr. E. H. Davidson, Orchid Dene, Twyford.

ONCIDIODA CINNABARINA (C. Nœtzliana × O. monachicum).—A very striking hybrid, having a long inflorescence, and cinnabar-red flowers, with narrow stalked sepals and petals, and the apex of the lip white. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

SOPHROCATTLEYA WESTFIELDIENSIS (C. labiata × S.-c. eximia).—A charming thing, with bright rose-coloured sepals and petals, and a mauve crimson lip. Exhibited by Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins).

SILVER LINDLEY MEDAL.

PHALÆNOPSIS INTERMEDIA PORTEI.—To Mr. A. Dye, gardener to the Right Hon. Lord Rothschild, Tring Park, for a fine inflorescence with seven branches and numerous flowers, being one of three produced by the original plant, which has been at Tring for over thirty years.

CULTURAL COMMENDATION.

DENDROCHILUM UNCATUM.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., Burford, for a very fine specimen, bearing sixty-eight of its graceful spikes.

OTHER EXHIBITS.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent four interesting hybrid Odontoglossums.

Lieut.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Cypripedium Artemis (nitens × Fairrieanum), a light-coloured and prettily spotted hybrid.

Sir Trevor Lawrence Bart., Burford, sent Cypripedium gattonense (Tracyanum × Lowianum), and Eria Fletcheri, a dwarf species, with roundish pseudobulbs, and cream-white flowers, borne singly on slender woolly peduncles.

C. C. Moore, Esq., Hackensack, New Jersey, U.S.A., sent Cattleya A. Dimmock, apparently a hybrid of C. Lawrenceana, having rose-coloured sepals and petals, and a purple-crimson lip.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Delhi (insigne Harefield Hall var. × Earl of Tankerville), a well-shaped and finely-spotted flower.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent Cypripedium Mrs. Harry Bruce (Sallieri × Thompsonianum), which is described on page 7 of our last issue.

Messrs. Charlesworth & Co., Haywards Heath, sent the pretty Restrepia striata, and a good form of Oncidium hybridum.

Mr. E. H. Davidson, Orchid Dene, Twyford, sent Cattleya Raphaeliæ Orchid Dene var., a very good form, having white sepals and petals, and a rosy crimson lip, with numerous yellow veins on the disc.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, sent a plant of the rare Oncidium Jamesonii.

Messrs. Stuart Low & Co., Bush Hill Park, showed two very diverse forms from a batch of hybrids between Lælia Iona and Cattleya Dowiana aurea, one having pale yellow sepals and petals and a purple lip veined with yellow, and the other rose-coloured with darker veining.

Messrs. James Veitch & Sons, Chelsea, sent several hybrid Cypripediums.

DISBUDDING.

Considerable discussion having taken place with respect to a plant certificated at the last meeting that infringed the Society's rule against disbudding, it was moved by Mr. de B. Crawshay, seconded by Mr. J. O'Brien, and agreed, that Certificates be not recommended for any plants the natural size and character of which have been, in the opinion of the Committee, in any way changed by the removal of buds or parts of the spike.

AT the meeting held on January 7th, 1913, there was a very fine display of Orchids, and the awards consisted of one Gold and eleven other Medals, one First-class Certificate, eight Awards of Merit, and one Certificate of Appreciation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), W. H. White, W. Bolton, Gurney Wilson, J. Wilson Potter, R. A. Rolfe, F. M. Ogilvie, G. F. Moore, F. J. Hanbury, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, R. Brooman White, C. J. Lucas, C. Cookson, de B. Crawshay, W. P. Bound, A. McBean, T. Armstrong, C. H. Curtis, and Sir Harry J. Veitch.

G. F. Moore, Esq., Bourton-on-the-Water (gr. Mr. Page), staged a magnificent group, chiefly Cypripediums, of which about 250 fine specimens were exhibited, in which C. insigne and its hybrids. including numerous forms of Leeanum and Euryades were well represented, also a number of C. Fairrieanum hybrids and others. The Society's Gold Medal was awarded.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), staged a magnificent group of Lælia anceps, including the varieties

alba, in fine condition, Schrœderæ, grandiflora, Sanderiana, Amesiana, Crawshayana, Dorothy, and others (Silver-gilt Flora Medal).

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group, including Odontoglossum armainvillierense Ernestii, the handsome O. crispum Mrs. Goodson, and others, some brilliant Odontiodas, Oncidioda Charlesworthii, and several Læliocattleyas and Sophrocattleyas.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Banksian Medal for a good collection of Cypripediums, Odontoglossum Thompsonianum, crispum, loochristiense, and others, the rare Miltonia Endresii, Cirrhopetalum appendiculatum, Lælia anceps, &c.

Sir Charles Haddon, Birkhamstead (gr. Mr. Hayler), was awarded a Bronze Medal for a group of seven well-flowered specimens of Cypripedium insigne.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a magnificent plant of Odontioda Bradshawiæ violacea, bearing a large panicle of scarlet flowers, margined with light violet.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent good plants of Odontoglossum rosefieldiense and O. Vulcan.

F. J. Hanbury, Esq., Brockhurst, East Grinstead, sent Cypripedium Lady Carlile (Troilus × Hera), a large and handsome flower.

Lt.-Col. Sir George L. Holford, K.C.V.O. (gr. Mr. Alexander), sent a fine plant of Cattleya Miranda Holford's var., Cypripedium Corsair (Niobe × nitens), most like the former, C. Ulysses (Vandyke × G. F. Moore), and a fine form of C. Rossetti.

The Hon. Rupert James, Richmond, Yorks, sent Cypripedium Lady Evelyn James (Leeanum × aureum), a well-shaped flower.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Cypripedium Lady Dillon (Mrs. Wm. Mostyn × nitens), a large and well-coloured flower.

John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench), showed Odontoglossum Smithii, lighter in colour than the original form, O. crispum Kenchii, a prettily spotted variety, and flowers of a few seedlings.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Actæus Westfield var., and C. memoria Mostynii, a pretty yellow and white flower.

Lady Wernher, Luton Hoo (gr. Mr. Metcalfe), showed several plants of Calanthe Vulcan, a bright rose-purple hybrid of the Veitchii group.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver-gilt Flora Medal for a very choice group, the centre being composed of Læliocattleya Ariel, Golden Oriole and allied hybrids, Lælia autumnalis, many good Odontoglossums, some brilliant Odontiodas, and others, with

examples of Masdevallia tovarensis and Oncidium cheirophorum in front.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group of Cypripediums, with varieties of Lælia anceps, Calanthes, Brassocattleyas, Masdevallia Hincksiana, Schrœderiana, tovarensis, bockingensis, and others.

Mr. E. H. Davidson, Orchid Dene, Twyford, received a Silver Banksian Medal for a good group of choice things, including plants of the brilliant vermilion-scarlet Habenaria Roebelenii, Oncidium crispum with a nine-branched panicle, the brilliant Odontioda keighleyensis, O. Bradshawiæ, and a few good Odontoglossums and Cypripediums.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a showy group, containing plants of Phalænopsis Schilleriana and Aphrodite, Dendrobium Phalænopsis and Wardianum, Ansellia humilis, Oncidium splendidum, Angræcum sesquipedale, Vanda cœrulea var. albo-cœrulea, white with a blue lip, the rare Zygopetalum Murrayanum, and a few showy Cattleyas, Læliocattleyas, and Cypripediums.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a choice group, consisting of some well-grown Odontoglossum crispum and blotched hybrids, Lælia anceps and Gouldiana, Cymbidium insigne and Wiganianum, Odontioda Bradshawiæ, Miltonia St.-Andre, Brassocattleya Leemanniæ, and others.

Messrs. Sander & Sons, St. Albans, received a Silver Banksian Medal for a good group, including Læliocattleya Amarylloso, Walter Gott, Pauline, a pretty yellow hybrid, Miltonia Bleuana gloriosa, a very beautiful form, a well-flowered Epidendrum polybulbon, Cypripedium Minos Youngii, C. Troilus Sanderæ, and some good Odontiodas and Odontoglossums.

Messrs. James Veitch & Sons, Chelsea, received a Silver Banksian Medal for a good group, including Miltonia Warscewiczii, Cattleya Ianthe, Brasso-cattleya Maroniæ, a pretty little Dialælia from Diacrium bicornutum and Lælia purpurata, Cypripedium insigne Sanderæ, Idina, Actæus langleyense, and a few others.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM PESCATOREI SANDERÆ.—A very distinct and striking form, having flowers of good shape, and the inner parts of the segments spotted with cinnamon-brown. The plant bore a large branched panicle of flowers. **Exhibited by Baron Bruno Schröder.**

AWARDS OF MERIT.

CYCNOCHES COOPERI.—A Peruvian species, nearly allied to C. pentadactylon, but having the sepals and petals of a nearly uniform mahogany brown. The plant bore two fine racemes. Exhibited by Messrs. Sander & Sons.

CYPRIPEDIUM ALCINIDA (Alcibiades × insigne Harefield Hall var.).—A

fine thing, having a broad white dorsal sepal with apple-green base and some purple spotted lines, and well-shaped brownish petals and lip. Exhibited by Messrs. Charlesworth & Co.

CYPRIPEDIUM AMAZON (Leeanum Corona × nitens).—A finely-shaped flower, with the broad dorsal sepal green below and white above, and the petals and lip also broad. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

CYPRIPEDIUM IONA (bellatulum × Fairrieanum).—A very distinct and charming flower, most like the former in shape, and beautifully veined throughout with claret-purple. The leaves are very prettily mottled. Exhibited by His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter).

HABENARIA ROEBELENII.—A brilliant ally of H. militaris, having the flowers vermilion-scarlet throughout. It was described at page 39 of our last issue. Exhibited by Mr. E. H. Davidson, Orchid Dene, Twyford.

LÆLIA ANCEPS ROEBLINGIANA.—A remarkable variety, the flowers being rather small and very richly-coloured, and the petals veined with purple, and with the trace of a crest in the centre. Exhibited by C. G. Roebling, Esq., Trenton, New Jersey, U.S.A.

ODONTOGLOSSUM GEORGE DAY (Rossii rubescens × crispum).—A very pretty hybrid, having the sepals and petals spotted with claret on a lilac ground, and the front of the lip lilac-rose. Exhibited by H. S. Goodson, Esq., Putney (gr. Mr. Day).

ODONTONIA FIRMINII (M. vexillaria × O. crispum).—A striking hybrid, quite intermediate in character, and having white flowers, with an ample lip, and a brownish rose marking in front of the yellow crest. A second plant had rather smaller flowers, and the spotting on the lip rather more rosy. Exhibited by M. Firmin Lambeau, Brussels.

CERTIFICATE OF APPRECIATION.

ADIODA ST.-FUSCIEN (Ada aurantiaca × Cochlioda Nœtzliana).—A form with dark scarlet flowers, rather more open than in the Ada parent. Exhibited by Messrs. Charlesworth & Co.

At the meeting held on January 21st there was again a good display of Orchids, and the awards consisted of seven medals, one First-class Certificate, and five Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Messrs. J. O'Brien (hon. sec.), de B. Crawshay, J. Wilson Potter, Gurney Wilson, R. G. Thwaites, F. J. Hanbury, R. A. Rolfe, A. McBean, C. H. Curtis, J. Charlesworth, J. Cypher, J. E. Shill, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, Stuart Low, W. Bolton, J. S. Moss, and T. Armstrong.

Lady Wernher, Luton Hoo (gr. Mr. Metcalfe), staged a group of well-grown and flowered Calanthe Regnieri, with a few plants of C. Baron Schröder, one of the latter having an inflorescence four feet high, with three side branches. A Silver Flora Medal was deservedly awarded.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a most interesting group of rare things, including the striking Cirrhopetalum robustum, Zygocolax Wiganianus, and Z. Veitchii Kromeri, Zygopetalum rostratum, a fine plant of Restrepia striata, the rare Masdevallia elephanticeps and a well-flowered M. tovarensis, Sarcopodium triflorum, Eria globifera, Pleurothallis scapha, Oncidium dichromum, Cynorchis compacta, Tainia penangiana, Cypripedium Lady Colman, and Lycaste lasioglossa.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), showed Cypripedium Jura (insigne Harefield Hall var. × Mrs. Wm. Mostyn), a large and well-shaped flower, having a broad white dorsal sepal with lines of large purple spots, and well-coloured petals and lip.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed Cypripedium George Branch (Lathamianum × Boxallii), a large and well-coloured flower, most like the latter.

C. J. Phillips, Esq., The Glebe, Sevenoaks (gr. Mr. Bucknell), sent Odontioda Euterpe Glebe var., with deep red sepals and petals and a bright rose lip, and O. Joan (Odontioda Charlesworthii × Odontoglossum armainvillierense), having claret-red flowers with a few white markings.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed a fine plant of Lælia anceps Hilliana rosefieldiensis, bearing three fine spikes and eleven white flowers, with a very broad rose-coloured front lobe to the lip.

J. Brisdon Seatle, Esq., Fairfield, Putney (gr. Mr. Price), showed Odontoglossum crispum Rossendale, with a fine branched panicle, and a blotched seedling.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a good plant of Cypripedium Cupid magnificum, having cream white flowers tinged and spotted with purple, C. Morningtoniæ (F. Sander × nitens) with a well-spotted dorsal sepal, and Brassocattleya Wellesleyæ (B. glauca × C. Mossiæ Wageneri), a very pretty white flower.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the handsome Zygopetalum Roeblingianum, the pretty white, Dendrobium Ashworthiæ, a fine plant of Catasetum discolor, Lycaste lanipes, Trichopilia Gouldii, a fine Odontioda keighleyensis, Odontoglossum Insleayi, and some good forms of O. armainvillierense, Wilckeanum, and others, Vanda Amesiana, Sophrocatlælia Electryon (L.-c. Gottoiana × S.-l. Felicia), having nankeen yellow sepals and petals, with a dark purple lip,

Cypripedium Queen of Italy, a pretty hybrid between C. glaucophyllum and C. Fairrieanum, with a richly-coloured dorsal sepal and drooping petals, and other good things (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a fine group, including forms of Lælia anceps, Miltonia Bleuana and Hyeana, Calanthe bella, Bryan, and William Murray, Brassocattleya Maronii, Sophronitis grandiflora, Ada aurantiaca, Odontoglossums, and a lot of choice Cypripediums (Silver Flora Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a showy group, including some good Dendrobium Phalænopsis and Wardianum, Oncidium pulvinatum and tigrinum, Cattleya Loddigesii and Percivaliana, Sophronitis grandiflora, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including plants of Phalænopsis amabilis Rimestadiana, Pleurothallis Roezlii, a well-flowered Epidendrum polybulbon, a number of good Cattleyas, Læliocattleyas and Odontoglossums, Dendrobium epidendropsis and Brymerianum, Trichopilia laxa, Saccolabium violaceum Harrisonianum and S. bellinum, and some good Cypripediums, noteworthy among them being C. insigne Louis Sander (i. Harefield Hall var. × i. McNabianum), having a very broad white and well-spotted dorsal sepal (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a small group of Odontoglossums, including good forms of O. amabile, armainvillierense and others, also a few good Cypripediums (Silver Banksian Medal).

Mr. W. A. Manda, St. Albans, staged a very varied group of Cattleya Trianæ, Phalænopsis casta, and Cypripedium insigne Lageræ, having the dorsal sepal suffused with brown (Silver Banksian Medal).

Mr. E. H. Davidson, Borlases, Twyford, sent a fine example of Odontoglossum illustrissimum, a very richly-coloured Odontioda Bradshawiæ, and others.

Mr. S. Flory, Orchid Nursery, Twickenham, sent a fine plant of Odontoglossum Phœbe magnificum, a pretty O. Rossianæ, and a fine form of Cypripedium Simonii (insigne Harefield Hall var. × Leeanum Clinkaberryanum).

FIRST-CLASS CERTIFICATE.

CATTLEYA ENID VAR. F. LAMBEAU (Mossiæ Reineckeana × Warscewiczii Frau Melanie Beyrodt).—A very large and beautiful form, having broad pure white sepals and petals, and the front of the lip mottled with bright purple in front of the light yellow disc. Exhibited by M. Firmin Lambeau, Brussels (gr. M. Demunter).

AWARDS OF MERIT.

CŒLOGYNE INTERMEDIA (cristata Lemoniana × Massangeana).—A graceful hybrid, closely resembling C. flaccida in habit, but the flowers, which

are borne in short arching racemes, somewhat larger, with white, rather undulate sepals and petals, and the disc of the lip orange yellow, with three strongly crested keels. Exhibited by Messrs. J. Cypher & Sons.

LÆLIOCATTLEYA FIRMINII VAR. ARDENS (L.-c. Ceres × C. Dowiana aurea).—A handsome form, having copper-red sepals and petals with some lighter shading, and a dark ruby crimson lip with an orange yellow throat. Exhibited by M. Firmin Lambeau, Brussels.

ODONTIODA MADELINE VAR. PRINCE OF ORANGE (Odontioda Charlesworthii × Odontoglossum crispum).—Remarkable for having lost the crimson ground-colour of the former. The flower is of good shape, the sepals and petals light buff yellow, with some light brown markings, and the lip very broad. Exhibited by C. J. Phillips, Esq., Sevenoaks.

ODONTOGLOSSUM AIREWORTH GOODSON'S VAR. (Lambeauianum × crispum).—A very pretty form, having the sepals and petals lilac, heavily spotted with brown. Exhibited by H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day).

SOPHROCATTLEYA SAXA ORCHID DENE VAR. (S. grandiflora × C. Trianæ).—A large and handsome form, having broad sepals and petals of a clear rosy crimson, with some yellow in the throat. Exhibited by Mr. E. H. Davidson, Twyford.

MANCHESTER & NORTH OF ENGLAND ORCHID.

A MEETING was held at the Coal Exchange, Manchester, on January 2nd, 1913, when the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, A. Hanmer, F. A. Hindley, D. McLeod, C. Parker, H. Thorp, *Z.* A. Ward, A. Warburton, and H. Arthur (Secretary).

Large Silver Medals were awarded to *Z.* A. Ward, Esq., Northenden (gr. Mr. Weatherby); R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), and Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for fine miscellaneous groups, and to Messrs. James Cypher & Sons, Cheltenham, for a group of choice Cypripediums.

A Silver Medal was awarded to F. A. Hindley, Esq., Bradford, for a good group of Cypripediums, Odontoglossums, and Trichopilia suavis.

Bronze Medals were awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), and H. Arthur, Esq., Blackburn, for good groups of Cypripediums, the latter also containing Cymbidium Holmesii.

Interesting exhibits were also contributed by J. J. Holden, Esq., Southport (gr. Mr. Johnson); W. R. Lee, Esq., Heywood (gr. Mr. Branch); Messrs. Stuart Low & Co., Enfield, and Messrs. Keeling & Sons, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum J. Whitmoyer, a large flower of the amabile type, and well spotted. From *Z.* A. Ward, Esq.

Cypripedium Lady Dillon magnificum (nitens Ball's var. × Mrs. Wm. Mostyn), a large, well-balanced and spotted flower. From W. R. Lee, Esq.

AWARDS OF MERIT.

Cypripedium Mrs. F. Sander (Eve × insigne Sanderæ). From J. J. Holden, Esq.

Cypripedium Rossendale (parentage unknown. From R. Ashworth, Esq.

Vanda Amesiana albens. From Messrs. Stuart Low & Co.

Oncidium crispum var. The Knowle, and Gomeza Barkeri. From Messrs. A. J. Keeling & Sons.

AWARDS OF APPRECIATION.

Lycaste Skinneri var. Her Majesty. From J. J. Holden, Esq.

Cypripedium insigne var. International. From H. Arthur, Esq.

CULTURAL CERTIFICATE.

To Mr. Dalgleish, for fine examples of Cypripedium Leeanum giganteum and C. L. nobilior.

At the meeting held on Thursday, January 16th, 1913, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs J. Bamber, J. Cypher, J. Evans, W. Hatcher, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, *Z.* A. Ward, A. Warburton, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to *Z.* A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a splendid group of Cypripediums, Odontoglossums, and Odontioda Cecilia.

A large Silver Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a group composed principally of choice Cypripediums, Odontoglossums, and Cattleyas.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr Mr. Lupton), and Messrs. J. Cypher & Sons, Cheltenham, for good miscellaneous groups.

A Bronze Medal was awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a small group of Cypripediums.

Interesting exhibits were shown by H. Arthur, Esq., Blackburn; H. J. Bromielow, Esq., Rainhill (gr. Mr. Morgan); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); R. le Doux, Esq., West Derby (gr. Mr. Fletcher): W. Thompson, Esq., Walton Grange (gr. Mr. Howes); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), who staged the fine Dendrobium Schuetzei; Messrs. A. J. Keeling & Sons, Bradford; Messrs. Stuart Low & Co., Enfield, and Mr. W. Shackleton, Great Horton.

FIRST-CLASS CERTIFICATES.

Odontoglossum amabile var. excelsum, a large, well-shaped flower, with undulate segments, evenly blotched with plum-coloured markings. From Z. A. Ward, Esq.

Cypripedium Princess Patricia of Connaught (Alcibiades × nitens), showing the best features of Alcibiades but more compact, with deeply coloured spots on a round well-set dorsal. From S. Gratrix, Esq.

Cypripedium × Carola (Thompsonii × Euryades splendens), a large flower, of good shape and substance, having a white dorsal sepal with claret red markings, and broad petals of villosum colour and shape. From Wm. Thompson, Esq.

AWARDS OF MERIT.

Odontoglossum James Barclay, O. Violina Henderson, O. Lord Pirrie, and O. R. le Doux, all of unknown parentage. From R. le Doux, Esq.

Cypripedium Snowdon Range (Euryades Sir Trevor Lawrence's var. × Leeanum). From S. Gratrix, Esq.

Cypripedium waltonense var. W. Stevens (Thompsonianum × Rupert). From Wm. Thompson, Esq.

Odontoglossum Harryano-crispum Ne Plus Ultra. From Z. A. Ward, Esq.

Brassocatlælia Cooksonii (B.-l. Gratrixiæ × C. Dowiana aurea). From Col. J. Rutherford.

CULTURAL CERTIFICATE.

To Mr. Morgan, gardener to H. J. Bromielow, Esq., for a fine plant of Cypripedium Minos Youngii.

ORCHIDS IN SEASON.

SEVERAL interesting flowers are sent from the collection of J. J. Neale, Esq., Penarth, by Mr. Haddon, including a fine panicle of Seraphyta multiflora, which is one of five borne by the plant, producing a very graceful effect. There are fine inflorescences of Dendrobium Dearei and Phalænopsis, which have done very well this season, a fine Cycnoches chlorochilon, Phalænopsis Esmeralda, Cypripedium insigne Ernestii and Harefield Hall var., with C. Rossetti and C. Arthurianum, Cattleya Portia, Læliocattleya Issy, and a promising hybrid from L.-c. Clive × C. Warneri, with bright rose-coloured flowers of good shape, Stenoglottis longifolia, and, among the more botanical kinds, Liparis longipes, Bulbophyllum crassipes and Careyanum, Bifrenaria racemosa, Masdevallia muscosa, triangularis, amabilis and Schrœderiana, forming a very pretty little group.

A fine form of Cypripedium Romulus is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), who remarks that it was raised in the collection and is now flowering for the first time.

It has a broad white dorsal sepal, with a green base and some purple blotches. It was sent as a form of C. Troilus (a hybrid derived from C. nitens and C. insigne), for which C. Romulus is a much earlier name.

We have received from Messrs. James Veitch & Sons, Langley, two forms of an interesting hybrid from Cypripedium Thalia crossed with the pollen of C. Fairrieanum; also a flower of the seed bearer for comparison. C. Thalia is partly derived from C. Fairrieanum, and the seedlings show a marked return to the character of the latter species. The dorsal sepal is copiously blotched, and one form is much darker than the other. The seedlings are from the same capsule, and are now flowering for the first time. They should develop into fine things when the plants become stronger.

THE ORCHID EMBRYO-SAC.

AN important paper on the Orchid Embryo-sac, by Lester W. Sharp, appears in the November issue of the *Botanical Gazette* (liv. pp. 372-385, tt. 21-23). During the spring of 1910 the author visited Jamaica, with a party of botanists, and took the opportunity of studying the embryo-sac of a number of Orchids, and these were supplemented by observations on a few other cultivated species.

Orchids, remarks the author, standing at the end of a great evolutionary line, the Monocotyledons, and reaching extreme specialisation in other features, may be expected to show instructive deviations from the usual type of embryo-sac, and it is through a study of such deviations that a final explanation of the origin and nature of the angiosperm embryo-sac will probably be reached.

The species studied were Epidendrum variegatum, E. verrucosum, E. cochleatum, E. globosum, Phaius grandifolius, Corallorhiza maculata, Broughtonia sanguinea, Bletia Shepherdii, Cœlogyne Massangeana, and Pogonia macrophylla. Details showing the course of development of the embryo-sac from the megaspore mother cell in the different species are given, but are difficult to summarise apart from the series of fifty-five figures with which the paper is illustrated. A point of interest brought out is the variability within the species, involving a reduction of the number of divisions occurring between the megaspore and the egg. When a single megaspore produces the 8-nucleolate sac there are three such divisions: when a similar sac arises from a daughter cell, two megaspores thus taking part in the process, there are two divisions; and when the megaspore mother cell gives rise to the sac directly, four megaspores are involved and the egg is separated from the megaspore by but one division. It was hoped to discover among these advanced angiosperms a situation parallelling that in animals, in which the product of the reduction divisions at once becomes the egg.

As is well known, the ovules of Orchids do not develop far unless pollination has occurred. In most of the species here reported the pollen tubes are found growing among the ovules before the prophases of the reduction division in the megaspore mother cell, in one or two species they are not present before the embryo sacs reach the 2- or 4-nucleate stage. In reciprocal crosses between Phaius grandifolius and Bletia Shepherdii it was found that in both cases the pollen tubes develop in great numbers and grow down the ovarial cavity, in which ovules develop and produce embryo-sacs in smaller numbers, but in the same manner as after normal pollination. In no case, however, was fertilisation or an embryo seen resulting from crosses between these two species. Thus the stimulus necessary to the development of ovules with embryo-sacs may be furnished by foreign pollen incapable of effecting fertilisation.

In all the species in which fertilisation was observed it is of the usual type; one of the two male nuclei fuses with the egg nucleus, while the other fuses with the two polars. Also in all the species examined the endosperm nucleus disorganises without dividing, thus accounting for the elimination of endosperm from the Orchid seed.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Westminster, during February, on the 4th and 18th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting will be held on March 4th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on February 6th and 20th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for March 6th.

We learn that the Monton Grange collection of Orchids, formed by G. H. Peace, Esq., is being dispersed. The collection is well known in the Manchester district, and we believe contains many choice varieties. A notice appears in our Advertisement columns.

CATTLEYA ABEKENIÆ.—M. Gust. H. Müller Abeken, Lange Voorhout, Den Haag, informs us that a seedling of exceptional beauty has flowered in his collection. It is a cross between Cattleya Rothschildiana and C. Dowiana Rosita. It is most like a fine C. Rothschildiana in shape, but has yellow sepals and petals, and the lip is intermediate in character, with a rose-coloured margin. He cannot trace any record of this cross, and wishes it to be recorded under the name of Cattleya Abekeniæ. C. Rothschildiana is a hybrid from C. Gaskelliana and C. Dowiana.

CŒLOGYNE INTERMEDIA.—We have received from Messrs. James Cypher and Sons, Cheltenham, a flower of Cœlogyne intermedia (C. cristata Lemoniana × Massangeana), which received an Award of Merit from the R.H.S., on January 21st last. It is a charming little plant, having short arching racemes of flowers, somewhat resembling an enlarged C. flaccida, the colour being white, with an orange yellow disc to the lip and three strongly crested keels. The white colour raises a difficulty about C. Massangeana, but Mr. Cypher states that only the pollen of C. Massangeana and C. oculata were used and the capsule from the latter did not mature.

THE NEW CATTLEYA HOUSE AT KEW.—A new Cattleya house has been erected at Kew, which should prove a valuable acquisition, as none of the earlier houses were specially adapted for Cattleya culture, and the space available was limited. It stands to the north of the existing range, and its erection necessitated the removal of several trees. The grass bank and chains clothed with Ivy, which form the boundary of the terrace on which the range is built, have been extended along the front of the new house. The dimensions of the structure are: Length 46 feet 9 inches, width 20 feet, height to eaves 6 feet 6 inches, to top of ridge 13 feet. The sides and central benches in the house are of teak. The principal rafters are iron and the woodwork deal. Heywood's patent system is used in the glazing. The house is now furnished and its utility is likely to be well tested during the coming season.

ORCHID PORTRAITS.

ANGRÆCUM SESQUIPEDALE.—*Garden*, 1913, p. 7, with fig.

CATTLEYA FABIA.—*Gard. Mag.*, 1913, p. 3, with fig.

CŒLOGYNE INTERMEDIA.—*Gard. Mag.*, 1913, p. 57, with fig. (called "C. cristata" by mistake).

CYPRIPEDIUM DEMETER.— *Gard. Chron.*, 1913, i. p. 3, fig. 1.

CYPRIPEDIUM IONA.—*Gard. Mag.*, 1913, p. 43, with fig.

ODONTONIA FIRMINII.—*Gard. Mag.*, 1913, p. 21, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

F. J. Le M.—Brassavola nodosa, Lindl.

C. M.—Thanks for note, which shall appear next month.

L. F. B.—The rusty markings on the base of the Cypripedium leaves are caused by thrip, probably when the leaves were young. Fumigate if the insects are still present, or sponge with insecticide if the attack is only local.

W. B.—Received with thanks. Next month.

THE ORCHID REVIEW.

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OUR NOTE BOOK.

"AN ATROCITY.—The daily papers give accounts of the destruction of many valuable Orchids at the Royal Gardens, Kew, England, by the militant suffragettes. It is very difficult to convince one's self that members of the fair sex, of good breeding and refined associations, could ever be guilty of such an atrocious act of savagery.

'O woman! lovely woman! Nature made thee to temper man; we had been brutes without.'

Thus sang the poet over two hundred years ago. Is it possible that the time is coming when the sentiment will have to be reversed? We are sorry for Kew, for, in a way, its loss is the loss of the entire horticultural world. We are sorry for the misguided marauders who imagine they can help their cause by venting their fury upon the flowers!"

The above is from the issue of *Horticulture* for February 15th, which has just reached us, and we cannot improve upon it. The outrage was committed during the early hours of February 8th, and was discovered by the night stoker about four a.m., and he at once called the policeman who was on night duty, who summoned the foreman and the Curator. A lot of glass had been smashed, and the plants thrown about in all directions, and some of them broken to pieces, or the leaves and a large number of spikes torn off. The latter would be more easily seen in the dark. A few plants were practically ruined, and many badly damaged, these including Odontoglossums, Phalænopsis, Dendrobiums, Cymbidiums, Cœlogynes, Lycastes, Cattleyas, Cypripediums, and Epidendrum Wallisii. The Anœctochili—a good collection—were broken into fragments, perhaps considered specially valuable because placed under bell glasses. It was estimated that 136 plants suffered in various ways. The damage is estimated at about £150, including some £4 worth of glass. The marauders obtained entrance by smashing a pane in the door of the insectivorous house and climbing through, whence they passed into the main range of Orchid houses. They ultimately got clean away, leaving a card—on which was written "Votes for Women"—a bag containing some iron bolts, and two blood-stained

handkerchiefs, the latter showing that they did not escape scot free from the encounter. The weather favoured the raid, being very rough, with heavy rain. Fortunately, there was no frost, and mats were at once requisitioned and the glass quickly replaced, so that the damage under this head was not serious. A fine collection of Orchids just presented by Sir George Holford was in the new Cattleya house and thus escaped, with the exception of a few Cypripediums that were in bloom in the Show houses, of which a few leaves and flowers suffered.

It is suspected that the marauders obtained access through the adjoining Mid-Surrey Golf Grounds in the Old Deer Park; at all events a week later the putting greens there were badly damaged. In the early morning of February 20th the Tea Kiosk near the Temperate house was discovered to be in flames by the night stoker, who, by the light of the illumination, saw two women hurrying away. He blew a policeman's whistle, and constables took up the chase and arrested two women when hurrying across the golf grounds. Two fire brigades were quickly on the scene, but too late to save the building, which was practically reduced to a heap of ashes. The damage is estimated at about £1000. Whether there is any connection between these outrages or not remains to be seen. At the subsequent police-court proceedings the women were remanded for a week, bail being refused, in consequence of which it is reported that a book and some papers were flung at the chairman of the bench of magistrates.

We have just had a correspondence respecting the number of unflowered seedlings that are being sold without record of parentage, or with records that seem incredible or impossible when the seedlings flower. A correspondent has been particularly unfortunate in this respect, but it is difficult to suggest a remedy. Another phase of the same difficulty has just confronted us. Flowers of a number of seedling Odontoglossums that were obtained at a Sale were submitted for determination, with the Sale numbers. We suggested that the Sale Catalogue might contain the missing records, but this proved not to be the case. At these Sales a few numbers are reserved for plants in flower that may be brought in on the morning of the Sale, and in the case of seedlings flowering for the first time they are sometimes sold without any record. In the absence of information one can only trace the characters of the parent species, and suggest names that are plausibly correct, but in the case of secondary hybrids the method is not conclusive, as has been frequently pointed out, and most recently at page 8, where eleven very diverse forms of Odontoglossum percultum from the same capsule are figured.

Many hybrids of doubtful or unrecorded parentage are submitted to us for determination, and one can only deal with them as if they were natural hybrids, without the advantage of knowing that they must have come from a limited number of species that happen to grow together. It is rapidly becoming impossible to state the origin of these complex plants by examination of their characters, and we can only urge once more the importance of keeping accurate records.

GROWING SPHAGNUM MOSS.

ALL Orchid growers are aware of the value of live sphagnum moss for its great assistance in promoting the healthy growth and development of the plants, for without doubt, this moss, when it is alive and in healthy condition, is the ingredient in the potting compost, from which an Orchid derives much nourishment. I was much interested when looking over the collection of Orchids formed by T. Daws, Esq., J.P., of Ewhurst, Sussex, to note the way in which the sphagnum grows on the benches and on the pots of his Orchids. He attributes this chiefly to his being able to replenish it when required from a living bed of sphagnum. Mr. Daws hunted the many woods in this district for sphagnum moss several years ago without result, when at length he came to a large pool of water by the side of a wood, in the centre of which a very small quantity was growing. The place seemed ideal for its cultivation, so, with the help of one of his men, a ditch was dug to let out the surplus water, and when this had lowered itself, a large bed of decomposed *debris*, like a large island, was revealed, with clumps of willow and birch growing in it. As a result of the draining the sphagnum increased from the original small amount, which was only enough to fill a hat, at such a rate that now an area of some twenty yards long by seven yards wide is completely covered with thick short growing moss. He has thus, at some short distance from his house, a constant supply of nice compact growing heads of living sphagnum. It is obvious that sphagnum moss which can be procured so fresh must possess far better qualities than that sent out for sale after having been kept in sacks for at least several weeks, and is especially useful for top dressing. Where Orchid growers have a shallow depression which will hold water, it is quite easy to grow one's own sphagnum. It does not require running water, but likes to have it standing at an even height, if possible a few inches below the level of some willow clumps, around which it will grow in the greatest profusion. It seems to like shade, direct sunshine on it during the summer months turning it yellow, but providing water is kept round it not much harm will be done. The planting of a new bed in the first instance is by no means difficult, and if a genial autumn follows an astonishing amount of growth is quickly made.

C. ALWYN HARRISON.

ORCHID BREEDING.

THE MAKING OF A "SCARLET CRISPUM."

EVER since the advent of the remarkable Odontioda Vuylstekeæ, in 1904, the making of a "Scarlet crispum" has been the ambition of the hybridist, and the first milestone on the road was passed when, less than three years later, Odontioda Bradshawiæ flowered with Messrs. Charlesworth & Co., and received a First-class Certificate from the R.H.S. It had been obtained by crossing Cochlioda Nœtzliana with the pollen of Odontoglossum crispum—we believe a blotched form of it, though the blotching did not come out in the hybrid—and bore a spike of thirteen flowers, of a brilliant

Fig. 20. ODONTIODA BRADSHAWIÆ COOKSON'S VAR.

shade of cinnabar-scarlet. They were, however, rather deficient in size and shape. A better-shaped form was raised in the collection of the late Norman C. Cookson, Esq., by crossing a good typical white O. crispum with the pollen of Cochlioda Nœtzliana. this being one of the few cases in which this Cochlioda has been successfully used as the pollen parent. It was called Cookson's variety. The photograph (see fig 20), Mr. Cookson informed us, shows the exact size of the flowers when taken, being carefully checked with callipers. This form is the nearest approach to O. crispum in size and shape that we have seen, but it is by no means scarlet, as the

margins of the petals and tips of the sepals are lilac mauve in colour, and Mr. Cookson remarked in his letter that it was curious that another cross, with the blotched O. crispum Graireanum as the pollen parent, should give very much smaller pure scarlet-flowers, without spotting or blotching.

There are now several fine pure scarlet forms of O. Bradshawiæ in existence, and the question has been submitted to us as to how far they can be utilised in breeding the much-desired scarlet crispum, for the secondary hybrids of Odontioda Vuylstekeæ have shown a great loss of the scarlet colour. Major Hurst has stated that the common practice of mating a primary hybrid back to one of its parents cannot be expected to succeed, because such a mating implies the presence of a "single dose" only of one of the two characters concerned, and he suggests that a simple solution of the problem would be to mate two primary hybrids together that will give a "double dose" of each of the two characters that the Orchid breeder wishes to combine—in this case the scarlet colour of the Cochlioda with the larger size of the Odontoglossum—and he says it is obvious that this can be done simply by mating two of the F1 hybrids together, and, if the case is a simple one, the desired result should be reached in F2, on the average in one plant out of every sixteen raised.

This means, if we understand it aright, that if two primary hybrids were mated together, each of which contained a "double dose" of the size of one original parent and the colour of the other, these characters would break up and recombine, and among the seedlings there would be, on an average, one in sixteen combining the size of one original grandparent with the colour of the other, hence the desired "Scarlet crispum." But no such primary hybrids exist, for there is no species with large scarlet flowers to begin with, and such primary hybrids as are available only contain *half* a "dose" of the desired characters, the other half consisting of what the breeder is trying to eliminate. Further, there is no evidence of such complete separation of character as would justify the hypothesis. Segregation of previously combined characters has certainly been observed among hybrids, but blending of diverse characters is a far more familiar feature.

It would be a very simple matter to make the experiment of crossing two primary hybrids together, to see whether there is such a "royal road" to success. Indeed we believe that such crosses have already been made, and the result is now awaited with interest. In other groups such crosses are common, but we cannot recall one giving results parallel to the above hypothetical case.

But to return to the question of how far the pure scarlet forms of Odontioda Bradshawiæ can best be used in the production of a "Scarlet crispum." Recrossing with the Cochlioda is out of the question, for that would still further reduce the size of the flowers, and in recrossing with

Odontoglossum we should suggest using the finest pure white form that we could get, preferably one that had a tendency to produce spikes with few large flowers. Whether this would eliminate the rosy tinge seen in secondary hybrids of Odontioda Vuylstekeæ remains to be proved, but so far as we know these have been raised from blotched Odontoglossums, and these often have a tinge of rose in the ground colour. The ideal second parent we should suggest would be a fine Odontoglossum crispum virginale, as the complete absence of rose and brown, even from the column and the crest of the lip, should give the scarlet of the other parent full play, and some of the scarlet forms of O. Bradshawiæ have apparently colour enough for a much larger flower. We suspect that the "scarlet crispum" will not be obtained at a single step, particularly as regards size, and here restriction of the number of flowers on a spike should be aimed at. It will be interesting to see what the secondary hybrids of Odontioda Bradshawiæ are like, and they are already beginning to flower, for Messrs. Charlesworth & Co. exhibited Odontioda Latona (Odontoglossum spectabile × Odontioda Bradshawiæ) at the last Holland House Show, and this was described as a richly-coloured form with some darker blotches (*O.R.*, xx. p. 247).

R.H.S. ORCHID COMMITTEE.

THE following constitute the Orchid Committee of the Royal Horticultural Society for the current year. New members are indicated thus* :—

FOWLER, J. GURNEY, Glebe Lands, South Woodford, *Chairman.*

VEITCH, Sir HARRY J., V.M.H., F.L.S., 34, Redcliffe Gardens, S.W.; *Vice-Chairman.*

HOLFORD, Lieut.-Col. Sir GEORGE, K.C.V.O., C.I.E., Westonbirt, Tetbury, Glos.; *Vice-Chairman.*

COLMAN, Sir JEREMIAH, Bart., V.M.H., Gatton Park, Reigate; *Vice-Chairman.*

O'BRIEN, JAMES, V.M.H., Marian, Harrow-on-the-Hill; *Hon. Secretary.*

ALEXANDER, H. G., Westonbirt Gardens, Tetbury.

ARMSTRONG, T., Sandhurst Park, Tunbridge Wells.

ASHWORTH, ELIJAH, Harefield Hall, Wilmslow, Cheshire.

BOLTON, W., Wilderspool, Warrington.

BOUND, W. P., 112, Station Road, Redhill.

BROOMAN-WHITE, R., Arddarroch, Garelochhead, N.B.

BUTLER, W. WATERS, Southfield, Norfolk Road, Edgbaston.

CHAPMAN, H. J., Oakwood Gardens, Wylam-on-Tyne.

CHARLESWORTH, J., Lyoth House, Haywards Heath.

COBB, W., Normanhurst, Rusper, Horsham.

COOKSON, CLIVE, Oakwood, Wylam-on-Tyne.

CRAWSHAY, DE BARRI, Rosefield, Sevenoaks.

CURTIS, C. H., 2, Adelaide Road, Brentford, Middlesex.
CYPHER, JAMES, V.M.H., Queen's Road, Cheltenham.
DYE, A., Tring Park Gardens, Tring.
*FLORY, SIDNEY W., Amyand Park Road, Twickenham.
HANBURY, F. J., F.L.S., Brockhurst, East Grinstead.
HATCHER, W. H., Rawdon, Leeds.
*HUNTER, G., Blenheim Palace Gardens, Woodstock, Oxon.
LOW, STUART H., Bush Hill Park, Enfield.
LUCAS, C. J., Warnham Court, Horsham.
MCBEAN, A. A., Cooksbridge, Sussex.
MOORE, Sir F. W., M.A., V.M.H., Roy. Bot. Gdns., Glasnevin, Dublin.
MOORE, G. F., Chardwar, Bourton-on-the-Water, Glos.
MOSS, J, S., Wintershill House, Bishop's Waltham.
OGILVIE, F. MENTEITH, 72, Woodstock Road, Oxford.
POTTER, J. WILSON, 219, Ashley Gardens, S.W.
ROLFE, R. A., A.L.S., 12, Lawn Crescent, Kew.
SANDER, F., V.M.H., St. Albans.
SHILL, J. E., The Dell Gardens, Englefield Green.
THOMPSON, W., Walton Grange, Stone, Staffs.
THWAITES, R. G., 23, Christchurch Road, Streatham, S.W.
WHITE, W. H., Burford Lodge Gardens, Dorking.
WILSON, GURNEY, F.L.S., Glenthorne, Haywards Heath.

SELENOCYPRIPEDIUM MALHOUITRI.

AT a meeting of the Société Nationale d'Horticulture de France held on November 28th last a curious hybrid, said to have been obtained by crossing Cypripedium Harrisianum with the pollen of Selenipedium Schlimii, was exhibited by M. Eugène Boullet, of Corbie, under the name of Selenocypripedium Malhouitri (*Journ. Soc. Nat. Hort. Fr.*, 1912, p. 706). The flower is said to have retained the dorsal sepal of the mother plant, modified by some maroon and red spots, which replace the maroon and green lines of C. Harrisianum. The petals are linear, much reduced in breadth, and lined with maroon on a green ground. The lip is smaller than in S. Schlimii, curved and projecting in front, and the colour green, much spotted with red brown. Although not of much interest from a decorative standpoint, it is said to quite dispel a very general idea that the two genera cannot be crossed together. Only two seedlings were obtained, one of which died when very young, so that the plant is at present unique. We should be much obliged for a flower of this interesting plant, for previous crosses between the two genera which we have seen did not show any hybrid character. M. Boullet is said to have a capsule nearly mature on C. Leeanum crossed by S. Schlimii.

CHINESE CYPRIPEDIUMS.

WHEN figuring the Chinese Cypripedium Franchetii, at page 358 of our last volume, we alluded to two other Chinese species which have been introduced from the Thibetan borderland by Mr. E. H. Wilson, namely, C. luteum and C. tibeticum. These, through the kindness of the Editor of *Horticulture*, we are also able to figure.

C. LUTEUM (fig. 20), which has been known to science for nearly twenty-five years, flowered for the first time in cultivation at the Arnold Aboretum in May, 1911, when the photograph was taken, and Mr. Wilson remarks

Fig. 21. CYPRIPEDIUM LUTEUM.

that they were only about half their usual dimensions on account of their being forced. The roots were dug up in October, 1910, transported some eighteen hundred miles by porters, boat, and steamer, and finally shipped from Shanghai on March 14th, 1911. They were received at the Arnold Arboretum, Boston, on April 12th, were potted and kept in a greenhouse,

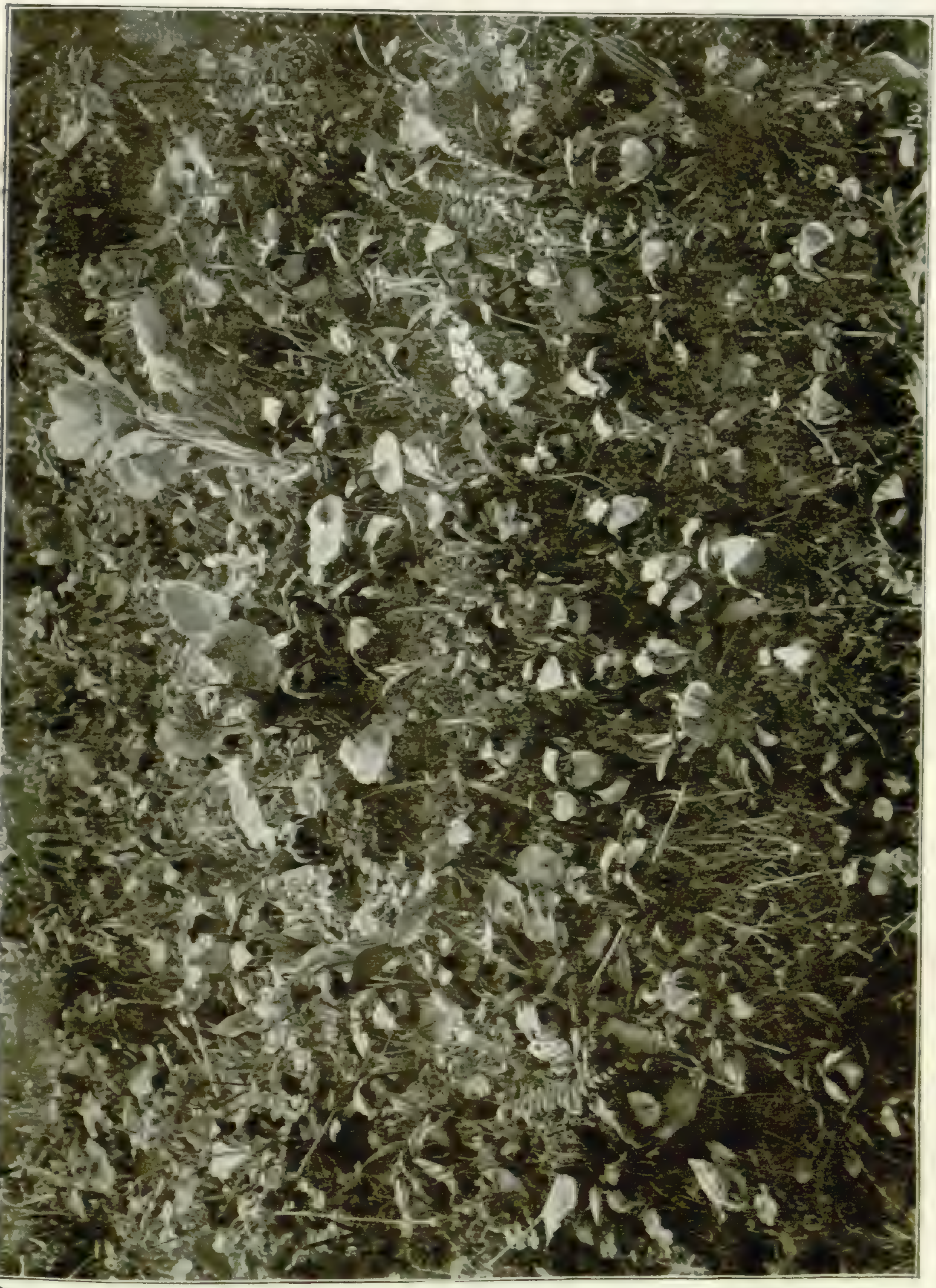

Fig. 22. CYPRIPEDIUM TIBETICUM (see next page).
(The base of the block is to the right.)

and on May 6th the flowers were expanded and the photograph was taken. Mr. Wilson remarks that although the roots were a full six months from the time of collecting to that of planting they came through in good shape, and hundreds are growing freely in the Aboretum nurseries. Their hardiness, as judged from the altitude at which they occur in a native state, and from plants growing in association with them, is assured. It grows from nine to eighteen inches high, and has solitary clear yellow flowers with usually a few spots or blotches of orange brown on the face of the lip.

C. luteum was originally discovered by Pere David, at Moupine, E. Tibet, in June, 1869, and was described by Franchet in 1888 (*Pl. David.*, ii. p. 126). Afterwards it was collected by Delavay around Tali, in the province of Yunnan, where it was said to be common at about 10,000 feet elevation. Since then it has been met with by various collectors in Western China at altitudes varying from 8000 to 11,000 feet. Mr. Wilson remarks that its habitat is the margins of woods and thickets, and is also found on scrub-clad boulders stranded in bogs. Around Sungpan, in the extreme north-west corner of Szechuen, it is abundant in thin woods of spruce and silver fir, growing near the margin of certain glacial torrents which are surcharged with petrifying limestone. Nevertheless, having seen it growing in a variety of soils, he hesitates to say that a calcareous soil is *necessary*. A cool moist situation and plenty of leaf soil would seem the essentials.

In habit, vigour, and general appearance the species closely resembles the North American C. Reginæ, and indeed has been confused with it, for the remark that the latter had "recently been discovered in Western China, on the borders of Tibet, together with the remarkable little C. arietinum, also a native of Canada and Eastern North America" (*O.R.*, i. p. 269), was based on a dried specimen of C. luteum. At that time no specimen o C. luteum was available for comparison, and the two are much alike except in colour, which cannot be made out from dried specimens. We may now hope to see the species alive, as living plants might now reach this country at any time.

C. TIBETICUM, as found in its native home in the month of June, is shown in fig. 21, from a photograph taken by Mr. Wilson. He remarks that it is widely spread along the Chino-Thibetan borderland and on the Alpine moorlands, between 10,000 and 13,000 feet elevation, and is numerically one of the commonest plants. It occurs in countless thousands, as indicated by the photograph, and is possibly the finest of all red-flowered hardy Cypripediums. The flowers are solitary, very large, with sepals and petals striped and reticulated with reddish purple on a paler ground colour, and the pouch usually dark maroon purple, rarely paler. This species was introduced to cultivation several years ago, Mr. Wilson having sent a few

plants to Messrs. James Veitch & Sons in April, 1905, which flowered a Coombe Wood in the following June. Its history was then given in our pages (xiii. p. 194), and soon afterwards a figure appeared in the *Botanical Magazine* (t. 8070). A year later it was exhibited at the Temple Show, and received a First-class Certificate. A considerable number of plants are now in the Arnold Arboretum. It may be added that, owing to the width of the block, we were unable to insert the name at the base. The picture, however, should be viewed from the side.

CALENDAR OF OPERATIONS FOR MARCH.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

WITH the advent of March the season of growth is rapidly approaching, and there will be plenty to occupy both the hands and the minds of those who have the care and attention of a large collection of Orchids.

TEMPERATURES.—Owing to more favourable conditions outside, the temperatures may now range a few degrees higher all round, both night and day, than those given in the January number. The atmospheric conditions must naturally follow the temperatures, and more moisture may now be safely used. A humid atmosphere may now be maintained in all the divisions, and the conditions must be conducive to free and healthy growth. The sun's power at this season is often considerable, and sufficient to warm the houses during the daytime without the aid of fire heat, but sufficient artificial warmth is requisite to maintain the temperatures at night. During periods of bright sunshine a hot dry atmosphere must be avoided, as these conditions always bring in their train thrip and other pests which do irreparable damage.

VENTILATION.—The greatest care must be exercised during the present month, and often, instead of opening the ventilators too wide, it may be advisable to use the blinds to keep the temperatures down to their normal level. Fresh air must be admitted on all favourable occasions in every department. I have never yet seen plants thrive in stuffy, badly ventilated houses, but care must be taken that no draughts are caused, for one is as much of an evil as the other.

WATERING must still be done with discretion, for growth is not yet active, and the smaller amount of fire heat necessary to maintain the temperatures, and the greater amount of humidity in the houses, entails less evaporation from the compost. Care should be taken that the plants actually require water before it is applied to them. The usual caution must be displayed in applying water to all newly-potted plants, as this, to my mind, is often the cause of many plants not doing satisfactorily.

SHADING, that was put into position as advised last month, will now come into general use, but must not be applied to excess, and the plants

should receive as much light as possible, especially at this season of the year. Owing to the sunless season of last year, and the great number of wet, dull days we have experienced during the winter, the plants should be inured to the heat and light of the sun gradually. Heat and light are essential to some classes of Orchids, and these should be kept apart from the shade-loving kinds, which are incapable of withstanding an excessive amount of light.

CYPRIPEDIUMS.—The potting of these useful winter-flowering plants should be attended to as fast as they pass out of flower. Should there be any danger of the compost becoming decayed before another season, it is much the best practise to repot them now. The compost advised in the January number will answer their requirements. The sooner the potting of this family is completed the better, for plants that are well established and rooted yield flowers of improved quality.

EPIDENDRUMS.—Such Epidendrums as E. radicans, and the hybrids E. Burtonii, E. O'Brienianum, E. Boundii, and others, are rooting freely, and any that have become unsightly and require repotting may be attended to. They may be grown as single stems in small pots, or several may be placed together to form specimens. The long straggling stems should be taken off, just below where the new aërial roots are pushing forth. When grown as single stems they are easily potted, but when several are grown together it requires some little pains to make a well-balanced and even specimen. This is best accomplished by starting with the tallest growths in the centre and placing the others round it until the sides of the pot or pan are reached, where the shortest growths will make a finish. The above succeed in an intermediate temperature. E. vitellinum, although disliking root disturbance, must have attention when the compost becomes decomposed and sour. Plants that are developing new roots should receive attention, especially if there is any danger of the compost becoming exhausted before another season's repotting comes round. If the compost is sweet, and the pots sufficiently large, they may with safety be left over until another season. This species succeeds best at the warm end of the Cool house. Epidendrums thrive in a similar compost to Cattleyas, but must not be potted so firmly. Freshly-potted plants should be watered sparingly until the new roots have entered the compost and the growths get some two or three inches long, when liberal supplies of moisture may be afforded them.

EPIPHRONITIS VEITCHII.—This pretty dwarf bigeneric hybrid, which some growers find difficult to cultivate to their satisfaction, is continually pushing roots from the stems, and should be dealt with in the same manner as Epidendrum radicans, which is one of the parents. It is desirable to place five or six shoots in a shallow pan, and suspend them in a moist

position in an Intermediate house. It will succeed in a similar compost to that used for Epidendrums.

DECIDUOUS CALANTHES.—These desirable winter-flowering Orchids, having been kept dry and resting since their flowering period, will now be commencing to grow, and should be repotted before they push new roots to any length, otherwise there is danger of their being broken. The compost should be shaken from the old roots, which should be shortened, leaving them just long enough to hold the pseudobulbs in position. Leave the pseudobulb of the previous year's growth with the new shoot, any older ones being removed. These may be placed upon a layer of sphagnum moss or half-decayed leaves in some shallow receptacle, and be placed in a warm temperature, when they will quickly produce new growths, which may be potted up in the same way as the leading growths. Plants may be placed singly or several together, but in either case the pots must not be too large. Owing to the quantity of water required when in full growth, the base of the pseudobulbs should be kept below the rim of the pots. A suitable compost consists of half peat and half loam, from which all the fine particles have been taken, mixed with some sphagnum moss and dried cow manure. I am aware that many advocate a much more substantial and richer compost, but I prefer to rely on generous feeding when the plants are thoroughly established. During the early stages of growth discretion is needed in the application of water to the compost, an excess being often the cause of these plants being unsatisfactory. Whilst in growth they require plenty of heat and atmospheric moisture, and should not be exposed too much to the sun's rays. During the past season these delightful Orchids have been shown in wonderful condition, and in several cases from gardens which do not make a speciality of Orchids, and undoubtedly by such means the love of Orchids is fostered.

THUNIAS, as they commence to grow, must be repotted before they commence to push forth roots. They will succeed in the same compost as the preceding, and under the same conditions, except that they require a sunny position well up to the glass. They must be sparingly watered until their flower spikes appear at the apex of the newly-made stems.

PHAIUS, likewise, will succeed in the same compost, and under the same conditions, both as regards temperatures and other details. Those that are in need of new rooting material should have attention just before the new growth commences to push roots.

MILTONIA VEXILLARIA, also some of its hybrids, are pushing forth flower spikes from the partly-developed pseudobulbs. The plants may be watered whenever they become dry, and towards the end of the month may be placed in cooler quarters. The warm end of the Cool house or the

coolest end of an Intermediate house will answer their requirements. At this season every precaution must be taken against the attacks of thrip and other insect pests, mild periodical fumigations with some reliable vapourising compound being the best remedy.

DENDROBIUMS of the deciduous section will now make quite a gay picture in our houses, and the season can be prolonged for some considerable time by bringing some on gradually and keeping others back in cool quarters. No attempt at forcing those varieties that are at all scarce should be attempted, as fine flowers are not made by subjecting the plants to unnecessary heat. D. Phalænopsis and its numerous varieties that are developing new growths, and that are in need of fresh rooting material, may have attention as soon as new roots are observed to be pushing from the base. The most important detail in the cultivation of this class of plants is to give them plenty of heat, moisture, and light whilst in full growth, with a dry rest after blooming. This and the allied species will succeed in a similar compost to the deciduous section.

Cattleyas, Læliocattleyas, Brassocattleyas, and others that have passed out of flower and are commencing to make new roots, should have attention as regards repotting. It is necessary that the compost in which these various Orchids are grown should be kept in a sweet and healthy condition, as no Orchids resent sour material more than these. A suitable mixture is comprised of the following materials; equal portions of peat, polypodium, AI. and osmunda fibres, and sphagnum moss, all thoroughly cleaned and used in a rough state. If any difficulty is found in getting good peat fibre it may be left out, potting the plants quite firmly in the other materials.

VANDAS.—Such plants as Vanda teres, V. Hookeriana, the hybrid V. Miss Joaquim, with Renanthera coccinea, and other species which succeed under the same conditions, should be placed in their growing quarters, as no gain is likely to accrue from extending the resting season. These plants enjoy all the light possible, therefore the lightest possible position in the East Indian house or plant stove should be selected for them.

PLEIONES.—The late-flowering Pleiones, such as P. humilis and P. Hookeriana, should have attention as regards new rooting material, should it be necessary. A compost as previously advised for such varieties as P. maculata, P. lagenaria, and P. Wallichiana, which are now growing vigorously, will satisfy their requirements.

PHALÆNOPSIS that have bloomed and are commencing to make new roots may have any attention that is necessary. They are best grown in baskets suspended from the roof and not placed too near the glass, as they are liable to suffer from extremes of heat and cold. Healthy established plants that have roots clinging to the baskets in which they are growing

should not be disturbed, beyond removing the old decayed rooting material. This should be carefully picked out, the drainage made good, and the receptacles carefully filled up anew. Those in need of fresh receptacles should have any clinging roots carefully detached with the aid of a thin-bladed knife or similar article. Select for each plant a suitable basket or suitably-drained small pan, then work the compost carefully amongst the roots. The Cattleya compost is a suitable rooting medium for them. These plants require an abundance of moisture in the atmosphere during active growth, and even during the winter months it is not desirable to keep the house in which they are growing as dry as others.

GENERAL REMARKS.—We have now passed the worst of another winter, and our plants will respond to the more genial conditions. No attempt yet should be made to rush the plants into growth, but let each individual wake up, so to speak, and start its season's work in its own way, giving each the best care and attention, according to its needs, at our disposal. Every effort should be made to eradicate insect pests that trouble us, as, if unchecked, these parasites are continually doing much harm.

HYBRIDS RAISED BY M. CH. MARON.

WE have received from M. Ch. Maron, Brunoy, Seine et Oise, France, records of a few fine hybrids raised by him which have not yet been recorded in our pages, with the place and date of exhibition. M. Maron raises a large number of seedlings every year, and this is only a selection, a good many others not having yet been exhibited.

BRASSOCATLÆLIA ANDRE MARON (C. Schrœderæ × B.-c. Leemanniæ).—Paris, November 23, 1911.

BRASSOCATLÆLIA AURORA (L.-c. Ernestii × B.-c. Leemanniæ).—Paris, March 9, 1911.

BRASSOCATLÆLIA BEAUCIS (L.-c. Fournieri × B.-c. Leemanniæ).—London, October 24, 1911. This was recorded as B.-c.-l. Baucis (*O.R.*, xix. p. 342), without parentage, and we are glad to be able to make the correction.

BRASSOCATLÆLIA LEONARDI (B.-l. Helen × C. Mossiæ).—Royal International Horticultural Exhibition, Chelsea, May, 1912.

BRASSOCATTLEYA DIETRICHIANA (C. Fabia Vigeriana × B.-c. Leemanniæ).—Brussels, March 23, 1910).

CATTLEYA MURILLO (C. Maronii × C. Dowiana Rosita).—Brussels International Exhibition, October, 1910.

CATTLEYA SIGIND (C. Dowiana aurea × C. Adonis).—Paris Autumn Exhibition, 1911.

LÆLIOCATTLEYA ALPHAND (C. Fabia Vigeriana × L.-c. callistoglossa).—Brussels, October, 1910.

CHONDRORHYNCHA LIPSCOMBIÆ.

WE have now the pleasure of giving an illustration (fig. 23) of Chondrorhyncha Lipscombiæ, a pretty species which flowered in the collection of Mrs. Lipscomb, Wilton Grove, Wimbledon, in December, 1911, and was shortly afterwards described (Rolfe in *Kew Bulletin*, 1912, p. 133). It is a native of Panama, and was discovered by Mrs. Lipscomb's son, Mr. Lancelot Lipscomb, in unexplored bush on the hills near Las Cascades, and also near Bohio. The photograph represents the plant as growing in its native habitat, on the branches of high trees, and a second photograph was sent, giving a side view of the flower. Only part of the leaves is shown. A living flower was sent with the photographs, and Mrs. Lipscomb

Fig. 23. CHONDRORHYNCHA LIPSCOMBIÆ.

remarks that this flower is quite as good as in the photograph and the leaves are better. The flower sent is the second that the plant has borne this winter, and another appears to be coming. The scape is rather longer than in the wild specimen. The flowers are white, with some light purple veins on the lip. The species is allied to C. albicans, Rolfe, but has longer leaves, larger flowers, and a distinctly lobed lip. The genus now contains eight species, of which the remarkable C. Chestertonii is the best known. It is nearly allied to Warscewiczella, and requires similar treatment. The habit and absence of pseudobulbs would indicate that the plant is active through the greater part of the year, and should not be subjected to a dry rest, as are some other Orchids. It is a very interesting acquisition.

ONCIDIUM CHEIROPHORUM.

Fig. 24. ONCIDIUM CHEIROPHORUM.

The annexed figure represents a remarkably fine specimen of the charming little Oncidium cheirophorum, which was shown in the collection of

F. Ducane Godman, Esq., South Lodge, Horsham, by Mr. G. Giles. It was exhibited, with several others, at the R.H.S. Show of Autumn-flowering Orchids held at Westminster last November, and attracted much attention, both from Orchid fanciers and from gardeners who regarded it from a purely decorative standpoint.

The species was discovered by the Polish collector, Warscewicz, on the Chiriqui Volcano, Central America, in December, 1848, being found growing on oak trees at 8000 feet elevation, where the temperature is said to fall as low as 40°-45° Fahr. at night. Plants were introduced, which flowered for the first time in Europe in the collections of Senator Jenisch and Consul Schiller, at Hamburgh, in 1852, when it was described by Reichenbach (*Bot. Zeit.*, 1852, p. 695). According to the latter, it next appeared in public at Mr. Bridges' sale at Stevens' Rooms in 1856. Its history was given by Reichenbach in 1871 (*Gard. Chron.*, 1871, p. 168), the author remarking: "We feel much pleased to obtain it now from several of our London correspondents, as from J. Day, Esq., Messrs. Veitch & Sons, &c. One correspondent informs us that the anther is smooth, and has gigantic wings projecting from the column, just like a large old-fashioned bonnet. Though we should feel much frightened at such a creature with a nose like the beak of the anther, yet we feel quite enchanted at such a genial comparison, which reminds us of Dr. Lindley's often very funny and witty allusions. It is, indeed, the best philosophy to draw amusement from flowers, and we believe that Orchids are quite unrivalled in the endless riches of queer and astonishing formations they present, so often exceedingly difficult even to a monographer. The large crest would afford a very nice saddle for some insect, tasting, perhaps, the honey from the two warts at the base of the lip. We despair, however, of the insect being able to assist the act of fecundation, for the great wings and the formidable processus of the column, if presented like the trunk of an excited elephant, would be such impediments as to make selfish honey-drinking egotists out of the little hexapods."

O. cheirophorum is one of the prettiest of the small-flowering species, and one that succeeds well in the Odontoglossum house, producing a profusion of its graceful inflorescences. It is figured at t. 6278 of the *Botanical Magazine*. The specific name, "Wallflower-bearing," refers to the yellow colour resembling that of some species of Cheiranthus. For the loan of the block we are indebted to the Editor of the *Journal of Horticulture*.

Two very pretty companion plants were exhibited in the same group at the Show in question, namely the rosy lilac Oncidium ornithorhynchum, and its white variety, album. They are natives of the mountains of Mexico and Guatemala, always at considerable elevations, and succeed well under the same treatment as Oncidium cheirophorum.

SOCIETIES.

ROYAL HORTICULTURAL.

AT the fortnightly meeting held on February 4th last there was a good display of Orchids, and the awards consisted of seven medals, two First-class Certificates, and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), J. O'Brien (hon. sec.), de Barri Crawshay, Gurney Wilson, J. S. Moss, W. H. White, A. Dye, J. E. Shill, J. Cypher, H. G. Alexander, J. Charlesworth, F. Sander, F. J. Hanbury, S. Low, J. Wilson Potter, W. Cobb, T. Armstrong, W. Bolton, R. A. Rolfe, W. H. Hatcher, C. H. Curtis, C. J. Lucas, Sir Harry J. Veitch, and Sir Jeremiah Colman.

H. J. Bromielow, Esq., Rann Lea, Rainhill, Lancs. (gr. Mr. Morgan), sent Cypripedium Euryades New Hall Hey var., a very fine and handsomely-blotched form, and C. Alcibiades illustre, with a very broad green and white dorsal sepal.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent two very fine plants of Odontoglossum Lady Roxburghe (cirrhosum × percultum), one of them bearing a large panicle of seventy blooms.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontoglossum Cassandra (Urania × crispum), a pretty cream white flower, spotted with red-brown, and having a very spiny crest, O. Calypso (triumphans × Lambeauianum), a well-shaped flower, most like the latter in colour, and O. Cleopatra (Carmania × Vulystekei), having light yellow, heavily blotched sepals and petals, and a white lip, blotched with purple in front of the yellow crest.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the handsome Odontoglossum Wiganianum Goodson's var. (Wilckeanum × Rolfeæ), having clear yellow sepals and petals, spotted with purple brown, Odontioda Thwaitesii, Odontoglossum Cassiope Fairlawn var., and Lycaste xytriophora with six flowers.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Cymbidium Gottianum var. Dawn (eburneum × insigne), a beautiful white form, with a rosy zone round the front of the lip, C. G. var. The Pearl, another charming white form, having a few purple spots on the lip and a purple column, Cypripedium Constantine, a handsome form of unknown parentage, having a broad white dorsal sepal veined and spotted with purple, and Læliocattleya Dorothy (C. Schrœderæ × L.-c. Doris), having a spike of four light yellow flowers, tinged with salmon pink, and the front of the lip crimson.

C. J. Phillips, Esq., The Glebe, Sevenoaks (gr. Mr. Bucknell), sent Odontoglossum Antiope var. Reseda (Rossii × Edwardii), a very pretty

form, having bright purple flowers, tipped with lilac, and a light yellow blotch on the disc of the lip, and O. Phocis (Phœbe × Solon), a finely-blotched flower.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, including some fine white forms of Lælia anceps, the pretty Brassocatlælia Joan (B.-l. Gratrixiæ × C. Octave Doin), Brassocattleya Veitchii var. Queen Alexandra, B.-c. langleyensis, Brassolælia Gratrixiæ, a well-bloomed Sophrolælia Psyche, Læliocattleya bella, Phalænopsis Schilleriana, Trichopilia sanguinolenta, the chaste Zygopetalum Mackayi Charlesworthii, Miltonia Warscewiczii, the clear yellow Oncidium splendidum aureum, Odontioda Cassiope and Diana, with a number of good Odontoglossums and Cypripediums (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a select group, including some good Dendrobium Wardianum, Phalænopsis Schilleriana, Stuartiana and Sanderiana, Calanthe bella, William Murray and Bryan, Lycaste Skinneri, Ada aurantiaca, Spathoglottis Colmanii aurea, Cypripedium Boltonii, C. Venus, C. Graceæ, C. aureum Surprise, and other good Cypripediums (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a pretty group, including some good Læliocattleya callistoglossa, Cattleya Frederickiæ, Miltonia Warscewiczii, Brassolælia Helen, Cypripedium Venus Orchidhurst var., Odontoglossum percultum, O. armainvillierense, and others (Bronze Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a showy group, including Lælia superbiens with three spikes, Cattleya Fabia, C. Trianæ alboviolacea with the front of the lip slaty blue, another form with a sharply-defined purple blotch at the apex of the sepals and petals, white and coloured forms of Lycaste Skinneri, Dendrobium Wardianum, Ansellia confusa, Gomeza Barkeri, Cymbidium Wiganianum, an intense blue form of Vanda cœrulea, and a number of Cypripediums (Silver Banksian Medal).

Mr. W. A. Manda, St. Albans, sent a group of Cattleya Trianæ, showing a wide range of variation, and including some with variegated and flaked sepals and petals (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group of Cattleyas, Læliocattleyas, Odontoglossums and Cypripediums, the latter including C. Vandyck (hirsutissimum × Mons. de Curte), C. Milo, C. Lathamianum Sander's var., a yellow spotted form of C. Priam (Niobe × insigne Sanderæ), with the dark spotted type, the rare Lælia Lundii, Eria rosea, the pretty little Pleione yunnanensis, Saccolabium bellinum, Gongora truncata, Eulophia lurida, Dendrobium gracile, Ornithidium densum, Odontioda Bradshawiæ, Gomeza planifolia, Pleurothallis cardiothallis, and a fine specimen of Epidendrum laterale (Silver Banksian Medal).

Messrs. James Veitch & Sons, Chelsea, staged a good group, including Miltonia Warscewiczii, Lycaste Skinneri, the distinct Oncidium anthocrene, Odontoglossum Doris, a well-spotted O. Lambeauianum, Odontioda Devossiana, the fine Cattleya Trianæ Courtauldiana, C. Ianthe, and some good Cypripediums, including home-raised forms of C. insigne Sanderæ, and a batch from C. Countess of Carnarvon × Euryades (Silver Banksian Medal).

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent Cattleya Trianæ cœrulea and violacea, both white forms having some slaty blue on the front of the lip, and a hybrid from Cypripedium aureum virginale × Venus, a prettily spotted form most like the latter.

FIRST-CLASS CERTIFICATES.

CYMBIDIUM LADY COLMAN VAR. GOLDEN QUEEN (Veitchii × Tracyanum).—A very beautiful form, bearing two spikes of flowers having unusually yellow sepals and petals with dotted brown lines, and a yellowish white, well-spotted lip. Exhibited by Sir Jeremiah Colman, Bart.

ODONTOGLOSSUM ARDENTISSIMUM EBOR.—A very large and handsome form, bearing a spike of twenty-one flowers, with white sepals and petals, heavily blotched with violet-purple. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

AWARDS OF MERIT.

CYMBIDIUM J. DAVIS (Schrœderi × insigne).—A distinct and pretty hybrid, in which the influence of C. insigne is well shown. The spike is erect, the sepals and petals pale buff with red-brown lines, and the lip white, with some red-brown spots and markings. Exhibited by J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis),

ODONTOGLOSSUM AMANDUM (Pescatorei × Wilckeanum).—A very handsome form, bearing white flowers of excellent form and substance, with large claret blotches at the apex of the sepals and petals, and a purple band on the lip in front of the crest. Exhibited by C. J. Phillips, Esq., Sevenoaks.

ONCIDIODA COOKSONIÆ (C. Nœtzliana × O. macranthum).—A striking hybrid, having an elongated branched inflorescence, bearing numerous reddish orange flowers, most like the Oncidium parent in shape, but smaller, the lip being three-lobed, with a yellow crest. Exhibited by Messrs. Charlesworth & Co.

At the meeting held on February 18th there was a very fine display of Orchids, and the awards consisted of no fewer than five First-class Certificates, with one Award of Merit and eight medals.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, J. S. Moss, R. A. Rolfe, Stuart Low, F. M. Ogilvie, F. Hanbury, T. Armstrong, C. H.

Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, W. P. Bound, H. G. Alexander, A. Dye, W. H. White, de B. Crawshay, J. Wilson Potter, Sidney Flory, W. Bolton, R. Brooman White, C. J. Lucas, and Sir Harry J. Veitch.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a fine group, to which a Silver Flora Medal was awarded. The centre was made up of good plants of Phaius Norman, with a number of Læliocattleyas, Odontiodas, and Odontoglossums on either side, the latter including varieties of O. armainvillierense, O. Wiganianum, the richly-coloured O. Amethyst, and O. Lambeauianum Harry Goodson, a pretty light yellow flower with numerous purple spots.

Miss Baker Baker, Elmore Hall, Durham (gr. Mr. Roberts), sent Bletilla hyacinthina alba, a narrow-leaved white-flowered form, said to have been received from Darjeeling, where it may possibly have been collected, as no Indian habitat is known.

S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), sent a magnificent plant of Odontoglossum crispum Leonard Perfect, bearing a spike of fourteen very fine flowers, with a large purple-red blotch on each of the segments, and a chestnut brown blotch on the lip.

Lieut.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent examples of Cymbidium Alexanderi and C. Gottianum, Cattleya Trianæ Castor, a well-coloured form, and Læliocattleya Valeria (luminosa × Dora) having buff yellow sepals and petals veined with rose.

F. J. O. Montagu, Esq., Mundford, Norfolk, sent Cypripedium Mrs. Montagu (aureum Surprise × Leeanum Clinkaberryanum), most like the former, but larger and more yellow in colour.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed the handsome Odontioda Mrs. F. M. Ogilvie, bearing a spike of fourteen flowers, and a well-grown plant of Odontoglossum crispum Lady Jane.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Odontoglossum crispum Perdita, a prettily blotched form, and Cypripedium Ophir (exul × Calypso), most like the latter in character.

E. de Q. Quincey, Esq., Oakwood, Chislehurst (gr. Mr. Lees), sent Cattleya Trianæ The Admiral, a pretty hybrid between Cypripedium concolor and C. Godefroyæ, and a hybrid Dendrobium.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent Odontoglossum crispum var. The Dell Sunrise, a fine white form, with slight ruby red margin to the petals and an occasional claret coloured spot.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including some fine forms of Odontoglossum eximium and armainvillierense, two plants of the charming O. a. xanthotes, one bearing a large branched

spike, O. Phœbe magnificum, some good examples of Lælia anceps Schrœderiana, Miltonia Roezlii, a good plant of Angræcum citratum with four spikes, the rare A. Leonis, Brassocatlælia Joan, a pretty yellow hybrid, Sophronitis grandiflora, Vanda Amesiana, Brassocattleya Sedenii, Cattleya Tityus, Odontioda Bradshawiæ, some showy Læliocattleyas, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, containing over fifty fine forms of Cattleya Trianæ, including a few white forms, Dendrochilum glumaceum, Eria amica, some good forms of Læliocattleya Trimyra (L.-c. Myra × C. Trianæ alba), buff yellow with claret-coloured lip, the variety alba, from the same seed pod, having white segments and a yellow throat to the lip, Odontoglossum Fletcherianum, O. nevadense, some good O. Pescatorei, Ada aurantiaca with eight spikes, some good Cypripediums, Lycaste Skinneri and others (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a good group, including Phalænopsis Schilleriana, Zygopetalum crinitum, some good Calanthe Bryan and Lycaste Skinneri, a fine example of Angræcum superbum, Cattleya Trianæ, and some good Cypripediums (Silver Banksian Medal).

The Liverpool Horticultural Co., Gateacre, sent a group of hybrids from Lælia Cowanii and Cattleya Trianæ, showing much variation in colour, some being buff yellow and others having the front of the lip purple; also a few other hybrids, and examples of Cattleya Harrisoniana (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a good group, including some richly-coloured Læliocattleyas, choice forms of Cattleya Trianæ, C. Percivaliana and var. Little Gem, a pretty white variety with a pink front lobe to the lip, a pretty light purple Læliocattleya from L.-c. Gottoiana × C. Dowiana aurea, Odontoglossum Zephyr, the rare Angræcum Leonis, and some well-flowered examples of Dendrobium Wardianum (Silver Banksian Medal).

Mr. W. A. Manda, St. Albans, staged a good group of Cattleya Trianæ, showing much variation, and including a few forms having flaked petals (Silver Banksian Medal).

Messrs. J. & A. A. McBean, Cooksbridge, staged a nice group, including some examples of Lælia anceps Schrœderiana, Cattleya Trianæ, Cymbidium Gottianum, C. Schlegelii, C. Veitchii, some fine examples of C. insigne, Odontoglossum crispum and others (Silver Banksian Medal).

M. Maurice Mertens, Ghent, sent Miltonia Bleuana nobilior, and a few hybrid Odontoglossums and Odontiodas.

First-class Certificates.

Brassocattleya amabilis Goodson's var. (B.-c. Leemaniæ × C.

Mossiæ).—A very richly coloured form, of excellent shape, having rosy mauve flowers with a large amount of yellow on the disc of the lip. Exhibited by H. S. Goodson, Esq.

BRASSOCATTLEYA MENDA (B.-c. Veitchii Queen Alexandra × C. labiata Virginia).—A beautiful blush white flower, of excellent shape and substance, and having a broad crimson line-like blotch on the well-fringed lip, in front of the yellow disc. Exhibited by Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Hunt).

CATTLEYA TRIANÆ THE BARON.—A beautiful white flower, of excellent shape, and the lip blush pink in front of the light yellow disc. Exhibited by Baron Bruno Schröder.

CYMBIDIUM ALEXANDERI FOWLER'S VAR. (insigne × Veitchii).—A very large and beautiful form, most like the former, and having blush pink sepals and petals with dotted rosy lines, and the undulate lip cream white with dark red veining. Exhibited by J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis).

ODONTOGLOSSUM AMETHYST GLEBELANDS VAR. (Lambeauianum × eximium).—A fine form, having deep reddish claret flowers, with some white markings on the lower part of the segments and a white front to the lip. Exhibited by J. Gurney Fowler, Esq.

AWARD OF MERIT.

CATTLEYA LEDA (Percivaliana × Dowiana aurea).—A very pretty hybrid, with deep rose, moderate-sized flowers, and some, yellow veining in the throat of the lip. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O.

MANCHESTER & NORTH OF ENGLAND ORCHID.

A meeting was held at the Coal Exchange, Manchester, on Thursday, February 6th, when the members of Committee present were: *Z.* A. Ward, Esq. (in the Chair), R. Ashworth, J. Bamber, J. Cypher, J. Evans, A. Hanmer. Dr. Hartley, A. J. Keeling, J. Lupton, W. J. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, and H. Arthur (Secretary).

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a magnificent group, composed principally of Lycastes and Cypripediums. Among the former were L. Tunstillii, L. Imschootiana, and many choice varieties of L. Skinneri, while the latter included many of the choicest winter-blooming kinds, with a few seedlings raised at Bridge Hall. There were also two nice plants of Cymbidium insigne. A Gold Medal was awarded to the gardener for excellence.

Silver-gilt Medals were awarded to *Z.* A. Ward, Esq., Northenden (gr. Mr. Weatherby), and R. Ashworth, Esq., Northchurch (gr. Mr. Gilden), for very fine groups: the former composed principally of Odontoglossums in variety, the latter a more general group.

A Large Silver Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a fine group of Odontoglossums and Cypripediums in variety, with Miltonia Bleuana.

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), and Messrs. J. Cypher & Sons, Cheltenham, for good mixed groups.

A Bronze Medal was awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a small group of choice Cypripediums.

Interesting exhibits were also sent by H. Arthur, Esq., Blackburn; H. J. Bromielow, Esq., Rainhill (gr. Mr. Morgan); Messrs. Charlesworth & Co., Haywards Heath; Mr. J. Evans, Congleton; Messrs. A. J. Keeling & Sons, Bradford; Messrs. Sander & Sons, St. Albans, and Mr. W Shackleton, Bradford.

First-class Certificates.

Cypripedium King Ferdinand (Hera Euryades × Mrs. Mostyn), a fine, well-shaped flower, very bright in colour. From S. Gratrix, Esq.

Odontoglossum Ceres var. Rossendale (Rossii × Rolfeæ), with large flowers of good colour, and well spotted. From R. Ashworth, Esq.

Awards of Merit.

Odontoglossum Harlequin and O. eximium var. Ellis Markindale. From S. Gratrix, Esq.

Cypripedium Wellesleyæ (Venus × insigne Harefield Hall var.). From Rev. J. Crombleholme.

Odontoglossum Northern Star (Wilckeanum × ?). From Z. A. Ward, Esq.

Odontioda Diana var. Fire King. From R. Ashworth, Esq.

Cymbidium Wiganianum (Tracyanum × eburneum). From H. Arthur, Esq.

Botanical Certificate.

Bulbophyllum Dayanum. From Messrs. A. J. Keeling & Sons.

THE AMATEUR'S COLLECTION.

By C. Alwyn Harrison, F.R.H.S.

Most of the Cypripediums of the insigne class and others of the winter-blooming section will now be ready for repotting, if it is necessary. Remove the plants with care from their pots, shake off the old soil, and cut away all roots and leaves which are dead. Several composts are used for these Orchids, but I prefer a mixture of good yellow loam, mortar rubbish, crushed crocks, and sphagnum moss. I do not consider osmunda fibre or peat are necessary for these terrestrial Orchids. The fresh pots should be filled to two-thirds of their depth with clean broken crocks, and the soil should be pressed firmly round the plants, taking care that the crowns are

not buried under the compost. One should endeavour, in potting Cypripediums, to see that the base of the plant is always slightly above the rim of the pot. Keep any newly-potted plants almost dry at the root for several weeks, until it is seen that fresh roots are being emitted into the new compost. Frequent syringing over the leaves will prevent the plants from shrivelling. On bright sunny days it may be necessary to lower the blinds for a few hours in the middle of the day, otherwise the sun might be liable to scorch the leaves. It should be remembered that more shading is required now than during the next and following months, for all Orchids are at this time more subject to the various conditions of the weather, by reason of having passed through the winter, which is a very trying season for them.

As the days grow longer more water will be required. As previously remarked, no set rules can be given with regard to the number of times any Orchid should be watered, but the following may serve as a guide. Any plants in full growth should receive a good dose every other day, whilst those at rest should be given a small quantity about twice a week. Maintain as far as possible an average temperature of 55°-60° Fahr. during the day, with an optional drop of five degrees at night. It need hardly be remarked that fire heat must be employed for maintaining the correct amount of warmth up till the beginning of next month, for on no account must the house be shut up early in the afternoon with a view to keeping it warm enough without the use of the fire.

ONCIDIUMS.—The time has now arrived to repot the winter-flowering Oncidiums, which comprise such well-known kinds as O. concolor, crispum, divaricatum, dasytyle, flexuosum, Forbesii, Gardneri, incurvum, ornithorhynchum, tigrinum, and varicosum. I am firmly convinced that the deterioration of these plants may be effectually checked by annual repotting, and the compost recommended consists of two parts osmunda fibre to one of sphagnum moss, and a few oak leaves may be added with advantage. The plants must be kept almost dry until fresh roots are observed from the base of the bulb.

ODONTOGLOSSUMS.—Several members of this genus will be in flower during this month. Having been asked several times for a selection of a dozen hybrids of moderate cost, I would recommend the following: Adrianæ, ardentissimum, Clytie, Ceres, Fascinator, formosum, Halliotriumphans, Jasper, Lambeauianum, loochristiense, Rolfeæ, and warnhamense. For amateurs a very interesting speculation is the purchasing of unknown seedlings of Odontoglossums. These frequently produce flowers of wonderful colouring and good shape, whilst there is always the additional attraction of blooming a new variety.

There are some Orchids which are entirely unsuitable for cultivation in

an amateur's house, and a few words concerning these may be found acceptable. On no account attempt to cultivate any Odontoglossums which have the following for one of their parents: O. Cervantesii, hastilabium, Rossii, or Uroskinneri. Cymbidium Devonianum and elegans, Cypripedium bellatulum, Charlesworthii, Godefroyæ, and niveum are also unsuitable for cultivation by amateurs.

Cymbidiums.—Many of these will now be throwing up their flower spikes, and should receive copious supplies of water every day, with an occasional dose of weak liquid manure. The following are the best for amateurs: C. eburneum, insigne, Lowianum, Tracyanum, tigrinum, and Winnianum.

Next month I hope to describe the method of starting imported Orchids.

OBITUARY.

Gust. H. Müller-Abeken.—It is with great regret that we have to announce the death, on February 19th, after a long illness, of Herr Gustave H. Müller-Abeken, of Lange Voorhout, Den Haag, Holland, in his 48th year. The deceased was a keen lover of Orchids, and the possessor of a good collection, from which a number of interesting things have been sent to us. Among them we recall the interesting Brassocattleya sandhaghensis (B. Digbyana × C. Schilleriana), which was figured at page 241 of our 17th volume, and C. Abekeniæ (Rothschildiana × Dowiana Rosita), which was described at page 71 of our last issue. His name is commemorated in Cattleya Muelleri, a beautiful white hybrid derived from C. intermedia alba and C. Peetersiæ. He has been a subscriber to the *Orchid Review* for the last twelve years.

ORCHIDS IN SEASON.

Four interesting seedlings are sent from the collection of Dr. Hans Goldschmidt, Essen-Ruhr, Germany, three of which have been raised by himself. Læliocattleya callistoglossa × Lælia cinnabarina has bright yellow sepals and petals, with a tinge of salmon-colour, and a bright rose-purple undulate lip, with narrow purple lines on the yellow disc. It is a form of L.-c. Lowii (*Orchid Stud-Book*, p. 108). A seedling from Cattleya Leopoldi × Lælia cinnabarina has narrow rosy sepals and petals, and a three-lobed rich rose-purple lip with a white base. Dr. Goldschmidt remarks that many plants of this cross are flowering, but not one of them show the yellow colour of the Lælia cinnabarina. It is a form of L.-c. Diogenes (*O.R.*, ix. p. 37), raised by Messrs. Charlesworth & Co., from the reverse cross, in which the orange-yellow colour of the Lælia parent predominated. Læliocattleya Fournieri × callistoglossa has white sepals and petals, strongly recalling those of Cattleya intermedia, one of

the original grandparents, and the lip is somewhat three-lobed, and the colour purple, with a yellowish throat and some narrow purple lines. All these three were raised by Dr. Goldschmidt. The fourth is a brilliant Sophrocatlælia of unknown parentage, which we fail to identify. The shape of the flower indicates Lælia pumila very clearly, and we can only suggest that it may be a form of S.-c.-l. pumeximia. The sepals and petals are broad, violet purple in colour, the lip entire, very undulate, much darker than the petals, and the column white. It is a brilliant little flower, and should be taken care of.

Three interesting Cypripediums are sent by Mr. Wm. Brooks, Whitecross Nurseries, Weston-super-Mare. One is a seedling from C. villosum and C. exul, and is fairly intermediate between the two, with a well-blotched dorsal sepal. It is known as C. villexul. One from C. insigne and C. Germinyanum is a form of C. Chouvettii (*Orchid Stud-Book*, p. 144), and has a much spotted dorsal sepal and some purple at the apex of the petals. The third is a richly-coloured seedling of unknown parentage, though we believe it to be a form of C. aureum, but deeper in colour than the original form. It has more yellow on the dorsal sepal, while the petals, lip and staminode are orange buff with a little warm brown shading. There are many very minute brown dots at the base of the dorsal sepal and petals.

LIPARIS LACERATA.

THIS brilliantly-coloured Liparis has just flowered in cultivation, a plant which was imported from Borneo having flowered in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle. An inflorescence has been sent to Kew. The species was originally met with on the Lamao River, Borneo, by Burbidge, and was described from a drawing made by him (Ridl. in *Journ. Linn. Soc.*, xxii. p. 284). It was afterwards collected in several localities in the Malay Peninsula, Perak, the Larut Hills, Gunong Raye, and the Lankawi Islands, while a specimen collected in Tenasserim by Griffith has proved identical. It is allied to L. latifolia, Lindl., and bears a graceful arching raceme of six to eight inches long, and very numerous flowers, with buff coloured sepals and petals, and a bright red, pandurate lip, which is strongly denticulate in front. It is one of the most attractive species in the genus. R. A. R.

THE HYBRIDIST.

CYPRIPEDIUM BROADOAKSIENSIS.—This very charming hybrid is sent from the collection of F. Wrigley, Esq., Broadoaks, Bury, by Mr. W. Mickleraith, who states that it was derived from C. Hitchinsiæ × C. Niobe. It is thus a combination of the four handsome green-leaved species, C. insigne, Charlesworthii, Spicerianum and Fairrieanum, i nequal

proportions, and a particularly happy one. The shape is excellent, the dorsal sepal being 2½ inches broad, very slightly concave, deeply channelled up the centre, and reticulated and blotched all over with red purple on a rosy lilac ground. The petals are ¾ inch broad, by less than twice as long, and the lip is short and broad, lined above and spotted below with reddish purple on a light ground. The lip is short and broad, deep red-brown in front, and the staminode is whitish with a bright yellow centre. In shape the hybrid is most comparable with C. Charlesworthii, whence the rosy ground colour is also derived, while the markings are as clearly derived from C. Fairrieanum. It is a seedling flowering for the first time, and should develop into a very handsome thing.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during March, on the 4th and 18th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for April 1st.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on March 6th and 20th. The Committee meets at noon, and exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for April 3rd.

The Garden, in its issue for February 1st, under the heading "Workers among the Flowers," publishes a portrait of Major C. C. Hurst, F.L.S., Director of the Burbage Experimental Station, and co-Editor with Mr. R. A. Rolfe, A.L.S., of the *Orchid Stud-Book*, a work which is described as the only one of its kind ever compiled.

In the Report of the Council of the Royal Horticultural Society for the past year reference is made to the removal of the Great May Show to Chelsea in future. The Society has received much kindness from the Master and Benchers of the Temple in being allowed for so long a time to make use of their gardens, but for several years past the feeling of attachment to the Temple Garden and dislike of the crowding have been struggling together for the mastery; and now that the International Exhibition has proved that people will go to Chelsea, the Council have unavoidably come to the conclusion that it is their bounden duty in the interest of the vast majority of the Fellows to move the show in future to Chelsea, which affords a site nearly three times as large as the Temple. The Great May Show will accordingly be held on May 20th, 21st and 22nd, 1913, on the site of and in a similar tent to last year's International, and the Council hope that Fellows will individually invite and encourage their friends to attend.

The Autumn Orchid Show and Conference are also alluded to. Ten years ago it would have been thought impossible to produce a Show of Orchids at the beginning of the month of November. Certainly no one would have dreamt of such a glorious display as was to be seen at the Hall on the 5th of that month. The Hall was nearly filled with magnificent exhibits, which not only spoke of wonderful cultural skill, but also strongly emphasized the excellent work done by hybridists in bringing about such an extended season of flowering, and the debt of gratitude due to them from all lovers of flowers.

There is no mention of a repetition of the event, but in the Book of Arrangements for the current year there is a notice under the usual fortnightly meeting on November 4th that Orchid judging commences at 10 a.m., and the Orchid Committee meets half-an-hour later, which suggests that Orchids will be a special feature at this meeting.

The Lecture Room of the Society has been equipped with the very latest pattern of Epidiascope. It is constructed for ordinary lantern and for microscopic slides, and also to throw enlarged reflections of actual objects (flowers, insects, &c.) on to the screen. As regards objects to be reflected, the apparatus cannot bring into equal focus those which are more than one-eighth of an inch thick. When preparing specimens this fact should be remembered, and sections made of a thickness not greater than that mentioned. The operator can generally bring a flower into focus by placing it under a piece of glass. The lighter in colour the object is, the better the reflection. The apparatus has a water-cooling tank, so that no danger exists to slides from scorching by the arc lamp.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at meetings of the Committee are taken from the official report (continued from page 39) :—

January 7th, 1913 :—

ADIODA ST.-FUSCIEN.—Messrs. Charlesworth & Co., Haywards Heath, sent a hybrid between Ada aurantiaca and Cochlioda Nœtzliana, with narrow-petalled flowers of a deep red colour on a many-flowered raceme. This cross was first shown at the International Horticultural Exhibition at Chelsea by Mons. Graire, and it had been raised by Messrs. Charlesworth simultaneously. The Committee unanimously recommended that Certificates of Appreciation should be awarded to both M. Graire and Messrs. Charlesworth & Co.

CYCNOCHES COOPERI.—Messrs. Sander showed a plant under this name which was thought by some to be identical with C. pentadactylon, but Mr. Rolfe reports that, though very similar in structure to that species, it is

quite different in colour, the sepals and petals being of a nearly uniform mahogany-brown, and there are also some differences in the details of the lip. It would, therefore, appear to be sufficiently distinct to warrant a new name, and the Award of Merit recommended, subject to the name being found correct, therefore stands.

EPIDENDRUM CILIARE × LÆLIA CINNABARINA.—Mr. J. O'Brien showed flowers of a hybrid between these two plants, pointing out that, though not very conspicuous, the markings on the lip followed the remarkable fringing of the Epidendrum parent, and the form of the lip was markedly elongated.

MILTONIA VEXILLARIA × ODONTOGLOSSUM CRISPUM.—At the corresponding meeting last year M. Firmin Lambeau showed a seedling of this cross, and the Committee requested that further plants of the same raising should be shown when the opportunity occurred. M. Lambeau now sent two more plants bearing flowers very similar in appearance, and leaving no doubt that the parentage stated originally was correct.

January 21st.: DENDROBIUM FUSCESCENS.—Mr. O'Brien showed a specimen of this curious species with brown flowers from the Himalayan region. It is figured in Griffith's *Ic. Pl. Asiat.*, t. 309, and belongs to the section included by Lindley in his genus Sarcopodium (*Fol. Orch.*), along with D. Cœlogyne, D. amplum, and D. rotundatum. Lindley considered the genus Sarcopodium intermediate between Dendrobium and Bulbophyllum, but later botanists have divided it, putting some of the species in Bulbophyllum and some in Dendrobium. It may be noted that the technical descriptions published of the species describe two orange spots on the column, but there are really three colours, one of them being quite low down.

GHENT QUINQUENNIAL EXHIBITION.—The following British Orchidists have been selected to act as members of the Jury at the coming Quinquennial Exhibition to be held at Ghent from April 26th to May 4th: Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, Sir Frederick W. Moore, and Messrs. H. G. Alexander, de Barri Crawshay, C. H. Curtis, Stuart H. Low, James O'Brien, H. T. Pitt, R. A. Rolfe, F. Sander, and Gurney Wilson.

ORCHIS LONGIBRACTEATA.—In a note on "The Riviera Flower Season," Mr. H. Stuart Thompson remarks (*Gard. Chron.*, 1913, i. p. 99) that in the Hyeres district Orchis longibracteata was out in sheltered spots by the marshes on January 21st. This handsome Orchid is very abundant in certain places, and attains two feet in height later in the spring.

MR. G. I'ANSON.—Mr. G. I'Anson, who has been with Messrs. Charlesworth & Co. for a number of years, has been presented with an oak cabinet

on leaving the firm. He has a long experience of Orchid culture, having been previously with Messrs. Hugh Low & Co., and he would be glad to hear from anyone requiring his services, either in a private or trade collection.

We have received from Mr. Gosto Behary Seal, Calcutta, a photograph of part of his plant house, including a number of interesting Orchids, among which we can distinguish a fine example of Arachnanthe Lowii in bloom, and some Cattleyas, and Phalænopsis, which are grown with palms and other foliage plants.

ORCHID PORTRAITS.

BRASSOLÆLIA VAR. RIDOLPHIANA.—*Bull. Soc. Tosc. Ort.*, 1913, p. 11, with coloured plate. A white-flowered form of B.-l. Veitchii, raised from Lælia purpurata × Brassavola Digbyana.

CŒLOGYNE CRISTATA, Lindl.—*Bot. Mag.*, t. 8477.

CYMBIDIUM J. DAVIS.—*Gard. Mag.*, 1913, p. 115, with fig.

CYMBIDIUM LOWIANUM (a well-flowered specimen).—*Journ. Hort.*, 1913, i. p. 131, with fig.

CYPRIPEDIUM IDINA.—*Gard. Chron.*, 1913, i. p. 131, with fig.

LÆLIOCATTLEYA FIRMINII VAR. ARDENS.—*Gard. Mag.*, 1913, p. 81, with fig.

ODONTIODA MADELINE VAR. PRINCE OF ORANGE.- *Gard, Chron.*, 1913, i. p. 92, fig. 45.

ONCIDIUM CHEIROPHORUM.—*Journ. Hort.*, 1912, ii. p. 591, with fig.

SOPHRONITIS GRANDIFLORA.—*Gard. Mag.*, 1913, p. 99, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

H.T.P.—We acknowledge with thanks receipt of donations to the Frank Ashton Relief Fund and also to the Rev. W. Wilks' Testimonial Fund, both of which have been frowarded to the proper quarter.

A.A.P.—Phalænopsis Hebe, Rchb. f.

Photographs received with thanks.—Mrs. F.B.L. ; G.B.S.

J.T.B. ; H.T.P. ; O.O.W., next month

We have received from the Gardeners' Chronicle Office a copy of *The Planters Note Book*, by Robert Woodward, jr. Its object is to enable horticulturists and others to keep records of the behavior of the different trees, &c., in their collections. Each page is provided with ruled spaces for the Name, Origin, Habitat, Soil, Situation, &c., with a space for notes of subsequent behavior. It is well adapted to the purpose, and such records should be very useful for reference.

Catalogue received.—Messrs. Hassall & Co., Chase Side, Southgate, London, N., containing a large selection of species, varieties and hybrids, with prices.

THE ORCHID REVIEW.

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OUR NOTE BOOK.

THE great event of the coming month will be the Quinquennial International Horticultural Exhibition to be held at Ghent from April 26th to May 4th. Ghent has long been famous for its Quinquennial Exhibitions, but the one of 1913 forms part of a much larger Exhibition, which will remain open for several months. The Horticultural Palace will be a permanent building about a third larger than the Crystal Palace, and covers a site of seven acres, in the centre of the Town Park, an extent of nearly ninety acres of well-wooded picturesque country. As already announced, eighty-nine classes are devoted to Orchids, and a very fine show is anticipated, in which Belgian, French, and German exhibitors, with some of our leading nurserymen, will take part. Among other interesting classes we may mention that Gold Medals are offered for collections demonstrating the favourable influence of symbiotic fungi in the germination of Orchids, also to nurserymen for the greatest number of hybrids raised in their establishment, together with their parents.

Apart from the constant stream of hybrids, several very interesting and handsome Orchids have appeared at recent meetings of the R.H.S. On March 4th a fine spike of Eulophiella Peetersiana, with seventeen flowers and buds, was exhibited by Sir Trevor Lawrence, Bart., and a fortnight later a plant of the original E. Elisabethæ was staged in a choice group shown by Messrs. Charlesworth & Co., together with well-grown examples of Phaius tuberculosus and simulans. It was interesting to see how distinct the two latter are in habit and yet how closely they resemble each other in the shape, colour, and markings of the flowers, a resemblance which enabled one of them to masquerade under the name of the other undetected for many years. It may be remembered what a discussion the appearance of the original plant of Thouars caused on its appearance in gardens for the first time some twelve years ago. We believe the plant was soon lost, and the present one came from a new importation.

The malicious destruction of a lot of valuable Orchids at Kew was

reported at page 73, and we believe that nothing has been discovered about the offenders. The following, however, appears in the report of a speech by Mrs. Pankhurst, the "militant" leader, at the London Pavilion, on February 10th: "There were people who said it was wrong to destroy in a single night choice flowers which had taken years to reach that pitch of perfection, but how many lives were sacrificed in collecting the plants from the swamps where they grew, and what a useless sacrifice that was as compared with the great benefits which they hoped would come out of the destruction of these Orchids at Kew? Was it not necessary for women to do these things in order to call attention to the horrors that people had to suffer in the production of these beautiful flowers?" We believe the remarks of the producers of the destroyed Orchids were much more appropriate to the occasion.

And there is another significant reference to the matter. The militant leader has been arrested and committed for trial on a charge of having feloniously counselled and procured certain persons, whose names are unknown, to commit another outrage, and among the evidence produced before the magistrates we find it reported that in a speech made at the London Pavilion the accused spoke of the destroying of Orchid houses, window-breaking, and cutting telegraph wires, and referred to herself as the head and front of the movement, and as having, in many cases, incited people to do these acts.

SOWING ODONTIODA SEEDS.—With respect to the note on page 56, Mr. R. Brooman White, Arddarroch, kindly advises our correspondent to sow some of his Odontioda seeds on the compost of young seedling Odontoglossums. He finds nothing so successful, as the conditions suitable for the latter are equally so for the Odontiodas. This, we believe, includes a little extra warmth as compared with the established plants. The experience of Mr. J. S. Moss (see page 115) is also interesting in this connection.

GIFT OF ORCHIDS TO KEW.—We learn that Sir George Holford, on being informed that a new Cattleya house had been built at Kew, generously presented to the gardens a large number of species and hybrids from his collection at Westonbirt. Included in the gift were many specimen plants of Brassocattleyas, Læliocattleyas, and other hybrids, also a number of hybrid Cypripediums and Cymbidiums. It will give some idea of the value of the gift if we repeat what we were told by Mr. F. Sander, who had seen the plants selected for Kew before they left Westonbirt. Questioned as to their value, he stated that, if the plants had been purchased in the

open market, they could not have been bought for less than £500. It is particularly gratifying to find that the national collection of plants is not overlooked by the great owners of private collections. Kew does much to foster a love of horticulture among the people, and the gift of Sir George Holford is certain to be greatly appreciated by the thousands who visit those popular gardens.—*Gardeners' Chronicle.*

ORCHIDS: THEIR POPULARITY AND CULTURE.

A PAPER read by Mr. H. G. Alexander, Orchid grower to Sir George L. Holford, K.C.V.O. at a recent meeting of the Bath and District Gardeners' Mutual Improvement Association.

The cultivation of Orchids, commencing over a century-and-a-half ago, has always been an extremely attractive subject, for in this tribe of plants we have the most exquisitely curious and beautiful of all Nature's productions. The extraordinarily-formed flowers are rich in every shade and blending of colour, some of which possess fantastic habits, yet always elegant and often replete with the richest perfumes, or emitting the most refreshing and delicate odours. Orchid growing was at one time looked upon as exclusively the privilege of the few, and as a craze. This, like many of the old ideas associated with the cultivation of these interesting plants, was, as seen in the light of present-day knowledge, very extraordinary. Formerly, there were several reasons which caused many who admired them to hesitate before undertaking their cultivation. The high price which nearly all the showy kinds commanded was in itself a serious matter, to say nothing about the uncertainty that existed as to their growing after large sums had been spent in procuring them. In the early days, Orchids, as soon as received, were consigned into houses wherein a hot, steamy atmosphere without ventilation was maintained at all times, a method adopted to imitate the damp, close jungle in which all tropical Orchids were then supposed to have their home.

It was towards the middle of the nineteenth century that a change of system in growing Orchids under artificial conditions was brought about by Joseph Cooper and Donald Beaton, two of the ablest and most scientific gardeners in this country in those days. These cultivators, grasping the truth in the direction that more attention should be paid than hitherto to the climatic conditions under which Orchids grow at the various altitudes in the tropics, adopted their cultural treatment accordingly, by commencing to keep a more reasonable temperature, and admitting fresh air into the houses. Somewhere about the same time Mr. Paxton, afterwards Sir Joseph Paxton, adopted a similar treatment, and an improved method of potting, with special regard to efficient drainage and extra attention to root development. These were the chief deviations from the established

practice, and in them we see the approach to the cultural routine of the present day. Another change that had an enormous influence on the cultivation of all plants under glass, and contributed in no small degree to the improvement and extension in the cultivation of Orchids, was the heating of glass-houses by means of the hot-water system. Then followed the modern plant house with the improved methods of ventilation and means for the promotion of humidity.

How to popularize Orchid growing has for many years past occupied the minds of those who have been associated with these plants. Nevertheless, one could scarcely expect much advance in this direction until a fair idea of their modest needs became more common and widespread than hitherto. For upwards of a quarter of a century there has been much evidence as to the right and wrong methods of employing the various necessities in connection with their culture, and I venture to say there is no branch of modern horticulture that exhibits such wonderful progress as is shown in the cultivation of Orchids. Their popularity to-day is greater than any other class of plants that require to be grown under glass, and the ranks of their admirers are ever increasing. Who will say that their popularization is not still in its very infancy? The Royal Horticultural Society, without doubt the leading society of its kind in the world, has recently erected at Wisley a very large and elaborate structure for the cultivation of Orchids. This fact alone is of sufficient evidence to one and all of the popularity of Orchid growing, and of the greatest importance that every gardener must in these days have a good knowledge of their cultivation. All students at Wisley thus have every facility for acquiring proficiency in the art. The good and necessary example set by the Society should encourage the forming of collections, large or small, and all gardeners to study the nature of these plants in order that they may be fully prepared in case of necessity.

It is by no means necessary to have a complete range of greenhouses before embarking on Orchid culture. Anyone wishing to add grace to the ordinary run of greenhouse plants will find one or two houses amply sufficient to successfully grow a very large and representative collection of beautiful Orchids. In forming a small collection, I always advise keeping to the best known and easiest grown kinds, selecting them to suit the house they are to be grown in. For example, it is useless to try to grow Cattleyas and Odontoglossums under similar conditions. Both are of fairly easy culture, and essentially Orchids for the small collector if arranged in a suitable house and temperature. If only one house is devoted to their culture, I would always advise keeping this at an intermediate temperature, that is, a minimum winter temperature of 50 to 55 degrees by night and 55 to 60 degrees by day, these figures to rise in summer five degrees by

artificial heat, and rising up to 80 degrees when the sun is bright. In this temperature it is possible to grow a great variety of Orchids, including some of the showiest and most beautiful kinds in existence.

Taking into consideration the nature and general character of Orchids, especially the epiphytal species, one does not wonder that to master the essentials of their successful cultivation a longer time is required than is the case of other plants. By this I mean that growers fail to recognise the treatment necessary to enable them to keep their plants in a thriving state for an indefinite period. It does not require more than an ordinary acquaintance with Orchids to see by the character of their growth that Nature has made a special provision for their continual existence. In the bulbous species such as Cattleyas, Lælias, Dendrobiums, Odontoglossums, Oncidiums, Lycastes, and others, the roots which nourish the plant are confined to the newly-made pseudobulbs, while the roots of the old back bulbs die after a lapse of time, but the better the cultivation the slower the decay. The advancing growth, however, suffers in no way by the death of these roots, providing the old pseudobulbs they have been supporting are removed, for, if allowed to remain, they have to be supported by the newer growth, which naturally very seriously hinders the young bulb's formation and maturation. It is in this renewing of the tenure of life that Orchids differ from other plants. The removing of the old pseudobulbs should be done during the process of repotting, cutting them away from the last three or four leading ones; any that are removed from rare and valuable kinds, will, providing the eyes are sound, eventually start into growth, and, in due time, valuable stock is secured from material which, had it been allowed to remain, would only have been detrimental to the parent plant.

In the bulbless species, Vandas, Aërides, Angræcums, Saccolabiums, and Phalænopsis, for example, the natural provision for their existence is equally apparent the lower part of the stems, after the leaves and roots they produced are decayed, die gradually upwards, but the upper part is quite independent of the dead portion below, which has simply to be removed to enable the plant and its source of nourishment to be again brought in contact. This renewal of its existence is a peculiarity of this type of plant. In evidence of this I may say there are at the present time plants of Vanda, Aërides, and other distichous-leaved kinds in the Westonbirt collection that have been growing there for over fifty years.

It is impossible to lay down any rules as the best for the culture of Orchids. The plants are often found thriving under such very opposite treatment, and as one cannot be certain that the conditions and surroundings are in all cases precisely similar, much more can be done by suggestions than by definite advice. I will, however, venture to say that observation and common sense are very important factors if combined with

that system of culture the nearest approach to Nature, which must be the best, and most probable to lead to satisfactory results in the growing and flowering of these plants. The cause of failure in not a few instances that come under my notice is traceable to keeping too high a temperature. Nothing is more injurious to the plants, and many would be far better in cooler quarters than are often allowed. A very important matter is to see that a lower temperature is kept at night than in the day, for nothing is more injurious to plant life than high temperatures at night, nor is anything more contrary to natural conditions. So sensitive are all plants, and especially Orchids, to atmospheric influence, that no matter how well they are treated in other ways, they cannot long continue in a satisfactory condition of cultivation unless a proper atmosphere is maintained about them. Orchids, with few exceptions, do not mind, but thoroughly enjoy sun heat, if moisture and air are abundant, so long as they can obtain a cool night air for their recuperation after the heat of the day.

The state of the atmosphere is without doubt of equal, if not more importance, than the potting compost for the plants to root in—a condition that not only applies to Orchids but to the majority of other plants. Light is the very life of most plants, but it is less under our control than any other factor. Possibly in no other cultural detail are Orchids, and many other plants, so liable to be mismanaged as in respect to shading, and I would urge all young growers to make a special point of grasping the full value of this most essential element, light, for it is of the greatest importance, and nearly all plants pine for it in our dull, sunless winters, of which the present one is a melancholy example. The great influence that light has upon Orchids will be seen in the plants grown in it, for not only are these more free flowering, but the enduring properties of the blooms are greatly increased, frequently to the extent of lasting twice as long as others grown under more or less dense shade ; moreover, the plants are hardier, so to speak, that is, they are not so susceptible to the effects of slight errors of treatment in other ways.

In the case of those kinds that need a high temperature, with the ever-accompanying moist conditions of the atmosphere, it is not always possible to give them air in the amount received when growing naturally, but it is possible to a considerable extent to make up for this deficiency by giving the plants as much light as they will safely bear; for, with plants under glass, light has a similar correcting influence over deficiency of air to that which the presence of plenty of air has over inefficiency of light. I suppose there are few engaged in Orchid cultivation to-day who have not noticed during the past season the healthy vigour and growth of nearly all Orchids that benefit by heat and sunshine—sure evidence of how very beneficial was the hot weather of 1911, when during that rare and ideal summer we enjoyed

in this country so many months of brilliant sunshine. I fear the season of 1912 will not give us such satisfactory results. I will not suggest that Orchids, except just a few, will bear full exposure to light, but the aim should be to control it in keeping with the plants' requirements. Shading should be employed to break or diffuse the sun's rays, instead of totally obscuring them, as is so often the rule. Light, more than heat, is, in my opinion, most necessary to harden the tissues and to give to the foliage that robust and finished appearance so pleasant to the eye of all good cultivators. (*To be concluded.*)

ORCHIDS AT WINTERSHILL HALL.

An old-established and very interesting collection of Orchids which we have just had the pleasure of seeing is that of John S. Moss, Esq., Wintershill Hall, Bishops Waltham. Pleasantly situated on an eminence of about 400 feet above sea level, and within a dozen miles of the south coast, it possesses the advantage of a clear breezy climate, with a complete absence of urban fog, the result being visible in the health and vigour of the Orchids grown there. Plenty of light, especially during the winter months, is a very important factor in the successful culture of Odontoglossums.

Mr. Moss has long been an enthusiastic Orchidist, and if the collection is not large it dates from a period of over thirty years ago. It is comprised in four houses, though we saw a few Cœlogyne cristata alba in bloom in another house, also two or three Cypripediums, the only ones in the collection.

The Cattleya house is a three-quarter span of 50 feet by 15, with a southern aspect, and heated by nine rows of hot water pipes. There are top and bottom ventilators, and the shading consists of a single lath roller blind, running on a frame situated about 15 inches above the glass. Most of the plants are accommodated on the centre and side stages, but a few are suspended from the roof, especially a nice batch of Cattleya Dowiana aurea, all selected extra fine varieties, which are in thriving condition. At this season very few Cattleyas are in bloom, but we noted a few forms of C. Trianæ, and a good C. Lueddemanniana with well shaped flowers. There were also three plants of the distinct Brassavola glauca in bloom, a plant of Læliocattleya Haroldiana (L. tenebrosa × C. Hardyana), which came from M. Pauwels, and two or three plants of a very free-flowering scarlet Epidendrum derived from E. Schomburgkii and E. radicans. The latter is something like E. O'Brienianum in habit, but scarcely as tall, and the flowers show distinctly the character of E. Schomburgkii. We also noted Vanda tricolor in bloom, and a plant of Zygopetalum Mackayi bearing a capsule as the result of crossing with Odontoglossum Uroskinneri. This plant of Zygopetalum has a remarkable history. It is the fourth generation of

Z. Mackayi crossed with the pollen of Odontoglossum crispum, but in every case the Zygopetalum has been reproduced pure and simple, this result being clearly due to a kind of parthenogenesis, the Odontoglossum pollen causing the ovules to develop without fertilisation being effected. Hybrids are not expected on this occasion, but the capsule seems to be following the normal course of development.

This house contains a good collection of Cattleyas, Læliocattleyas and allies, and among hybrids raised in the collection were pointed out Cattleya Mantinii, Brassocattleya Veitchii (with very short bulbs), and a number of Brassavola Digbyana hybrids, which include seedlings from Cattleya Dowiana aurea, C. Mendelii, C, Mossiæ, Lælia purpurata and L. tenebrosa as the other parent. There were also a few imported plants of Cattleya Warscewiczii and C. Dowiana aurea mixed, which may possibly contain examples of C. Hardyana. A plant of Vanilla planifolia is trained on a wire beneath the roof, and is approaching flowering size.

The next is a small house originally put up for raising Cattleya seedlings in, but Mr. Moss being now chiefly occupied with raising Odontoglossums this house is occupied with other things. A little batch of Miltonia vexillaria was growing with remarkable vigour, also a few plants of Epidendrum vitellinum autumnale, a branching variety which was obtained from Messrs. Mansell & Hatcher. Some plants of Vanda cœrulea were establishing themselves, and we also noticed a few Cymbidiums and a very strong seedling Odontoglossum, raised from O. Edwardii and O. coronarium by Mr. Armstrong, which should produce a very curious hybrid.

The Odontoglossum house is a span-roofed structure 40 feet long by 12 feet broad, running east and west, with side stages and a path down the centre. It is provided with top ventilation and shutters at the sides, and is shaded on the south side with a lath roller blind fixed about 15 inches above the roof glass. One noteworthy feature it possesses is that the sides and end wall are built hollow, with cross ties here and there, and the air cavity provides a very efficient check against fluctuations in temperature. The house is provided with two rows of piping on each side, and Mr. Moss believes in a rather higher temperature for Odontoglossums than is sometimes given, especially in the winter. He also finds that in this breezy situation the ventilators have often to be used with great moderation to prevent an undue loss of heat and moisture.

The house contains a select collection, a process of weeding out the poorer and ordinary forms having been carried on for a long time, and we noted some choice forms of Odontoglossum crispum and a lot of hybrids, a number of which have been raised in the collection. Hybridisation has been carried on for a considerable time, and we saw seedlings in every stage, including a good number in flower, while capsules from some very promising

crosses are maturing. The plants generally are in thriving condition, and some examples of remarkable vigour were pointed out. Mr. Moss does not consider that seed bearing gives any appreciable check to strong well-rooted plants, and he pointed out several that were bearing capsules and a strong inflorescence, and also producing young growth at the same time.

Among plants in flower we may first mention a strong example of the beautiful O. crispum Mossiæ, which appeared among some imported plants some eight or nine years ago. The flowers are of excellent shape, and one measured four inches across the petals. The segments are very broad, well toothed, and bear very large, more or less confluent red-purple blotches, the ground colour having a little rosy suffusion (see fig. 25). This plant is

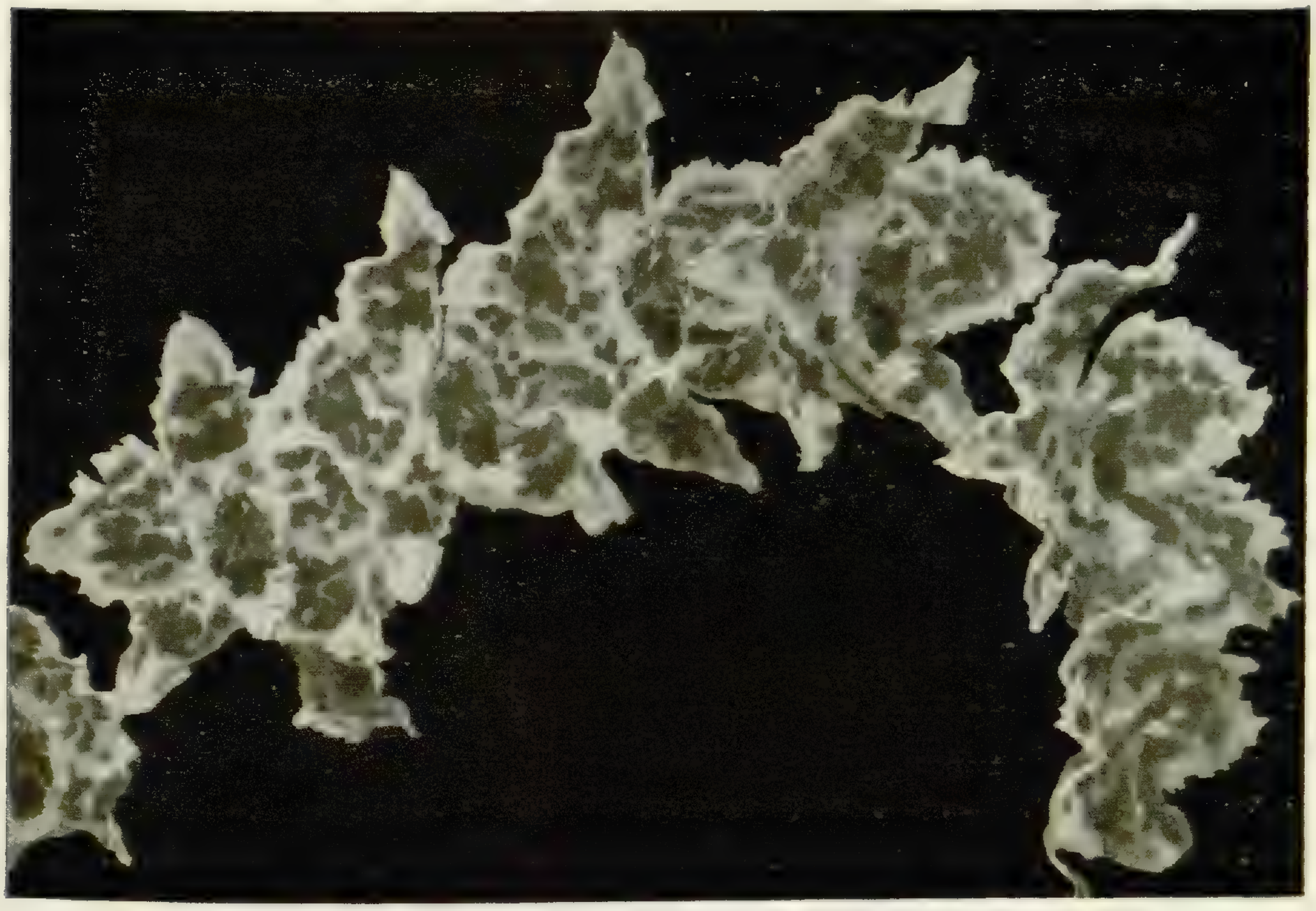

Fig. 25. Odontoglossum crispum Mossiæ.

being used by Mr. Moss for hybridising as often as possible, and it promises to be an excellent parent. O. c. Rossendale was bearing a strong spike of eleven flowers, measuring four inches across, the colour being white with a large cinnamon-brown blotch on each segment—an excellent example of good culture. O. c. Luciani is another gem now throwing up a spike. Another form of O. crispum bore two spikes of fifteen flowers each. O. Rossii and triumphans were also in bloom, with a very large plant of O. luteopurpureum, which bore long spikes of twenty-five and seventeen flowers, the latter the only plant of the species in the collection.

The hybrids in bloom were very interesting. O. illustre crossed with a blotched crispum was represented by six plants, showing great variation in

colour and in the amount of blotching. Three forms of O. Maritana (sceptrum × Rolfeæ) were also very different, one being light yellow with small dark blotches, one yellow with heavy brown blotches, and the third mostly brown with a few yellow markings. They came out of the same capsule. An extreme case was seen in two seedlings from O. Queen Alexandra × O. crispum Mossiæ, where one seedling had light yellow flowers with many red-brown blotches, and the other dark maroon-brown sepals and petals, with a few whitish markings, and the base of the lip heavily blotched with brown. A few forms of O. Fascinator, derived from O. Adrianæ × O. crispum Mossiæ, were very interesting, one having large white flowers very regularly blotched with red-brown, somewhat recalling O. Adrianæ grandiflorum (*O.R.*, xiii. p. 185, fig. 40), which we suspect is a wild form of O. Fascinator. This plant was flowering from the first-made bulb, and was producing two spikes, though under three years old from the date of sowing the seed. The other had large blotches and would have passed as a blotched crispum. O. exultans (excellens × crispum Mossiæ) had very round yellow flowers, well-blotched with red-brown. O. eximium was producing a spike of five heavily-blotched flowers, and a seedling derived from a good O. crispum crossed with O. crispum Mossiæ, called O. c. Kenchii, had a good round shape and very heavy purple blotching. The number of heavily blotched seedlings in flower was remarkable, and the almost entire absence of yellow was curious. Mr. Moss has only bloomed during the present season one white unspotted seedling among O. c. Mossiæ crosses.

Some other interesting things were in bloom. Miltonia Harwoodii Moss's variety (M. vexillaria × C. Nœtzliana) has fine magenta-rose flowers, most like the Miltonia in shape. It is a young seedling flowering for the first time, and a few days earlier had received an Award of Merit from the R.H.S. Odontioda Mossiæ (C. Nœtzliana × O. maculatum) is a very distinct hybrid which also received an A.M. at the same meeting. It has bright rose-red sepals and petals and a somewhat three-lobed lip, reddish buff in colour. A plant of O. Charlesworthii bore two racemes of intense crimson flowers. There were two very diverse forms of O. Bradshawiæ from the same capsule, one bearing sixteen scarlet flowers, and the other salmon-buff, as if the red had been bleached out. This was called var. Prince of Orange. The parents were C. Nœtzliana and a fine blotched crispum. There was also a very fine scarlet Odontioda Bradshawiæ, very near the desired "scarlet crispum," in bloom, bearing also a ripening capsule as the result of crossing with O. c. Mossiæ. We noted also Lælia Jongheana and a good plant of Sophronitis grandiflora in bloom. Among plants showing for flower we noted a fine specimen of Odontoglossum nævium with fifteen spikes, and O. Wilckeanum ×

Edwardii with a large branched spike which has been developing for about twelve months.

Among plants not in bloom were pointed out some seedlings of Odontoglossum Uroskinneri in thriving condition, some from O. maculatum × Pescatorei; O. crispum Magali Sander, O. c. Britannia, O. c. Sherlock Holmes, O. c. Queen Marguerita, and a lot of other choice things. O. Jasper (fig. 26) is a very handsome hybrid from O. amabile and O. crispum, which was purchased at the Tankerville Sale, but which was originally raised by Messrs. Charlesworth & Co. Mr. Moss specialises largely in blotched Odontoglossums, and it is from these that most of his numerous seedlings have been derived.

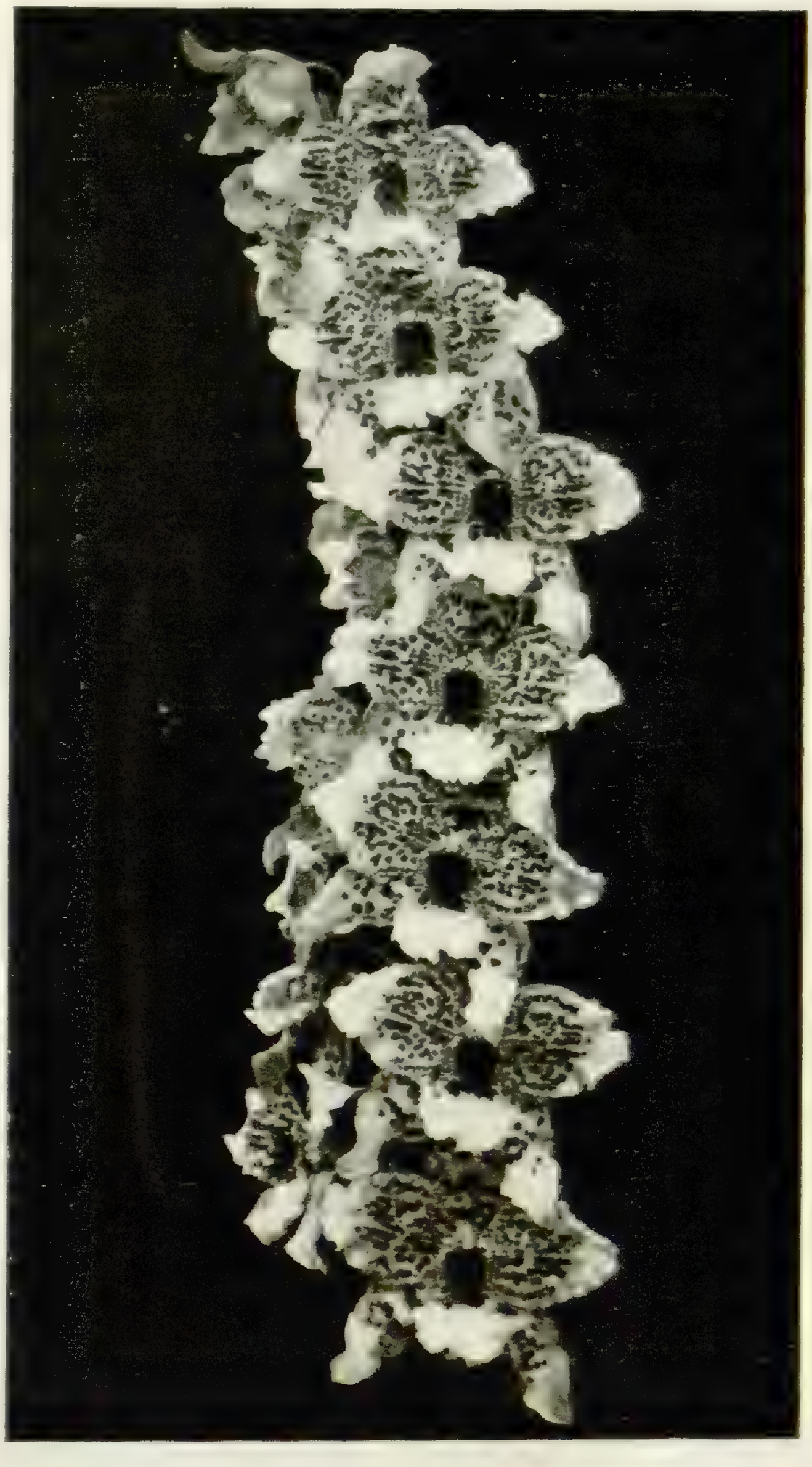

Fig. 26. ODONTOGLOSSUM JASPER.

A small house has been erected for raising seedlings in, and the experiment has been attended with great success. Its dimensions are fifteen feet long by twelve feet wide, and it really forms an extension of the Odontoglossum house, with the door at the other end. This is shaded only by a lath roller bind, except in the heat of summer when a layer of tiffany is stretched on the glass. Seedlings germinate here very freely, and the secret of success Mr. Moss would express in the one word "climate." The temperature is kept higher than in many collections, and he pointed out that the thermometer then stood at 68° Fahr.—this in an afternoon in March. The seeds are sown on the compost of growing seedlings, the

newer the compost the better, in fact he usually sows the seeds immediately the plants are potted. He also avoids the use of leaf-mould, because it harbours the maggot of the fly that is so destructive to Odontoglossum seedlings. They may possibly germinate better with a little leaf mould in the compost, but his experience is that it is more than counterbalanced by an increased loss of the seedlings, and he fumigates regularly twice a week at seasons when the fly is troublesome. We noticed a lot of Pinguicula caudata in flower, and remarked, jokingly, "These are not Orchids." "No," he replied, "they are fly catchers," and then came the information above given. The identity of this fly is apparently not known, but Mr. Moss believes it lives naturally in decaying leaves anywhere, and is brought with the compost into the house, where it becomes troublesome. We handled many pots on which the young seedlings were germinating freely, in various stages, and we saw also an experiment that is being tried of sowing the seeds on canvas, as in the case of Cattleyas, the pots being covered with a piece of cardboard. They appeared to be germinating freely, but it is a question whether this method would give light enough, in which case a piece of glass might be tried.

As soon as the young seedlings can be handled they are pricked off and placed under a hand light until established, there being several glass cases in the house for this purpose. Many interesting crosses were pointed out, including Odontioda Charlesworthii crossed with O. crispo-Harryanum, with O. Pescatorei, and with blotched and white forms of O. crispum; Cochlioda Nœtzliana crossed with Odontoglossum Rolfeæ; O. Uroskinneri crossed with C. Nœtzliana, this being the solitary instance in which this Cochlioda has been used as the pollen parent. Generally the capsule begins to develop and then goes off. Odontoglossum maculatum has been successfully used on several occasions. Odontioda Mossiæ has just been mentioned, and Mr. Moss has flowered O. maculatum × Pescatorei, an interesting cross though not of much value, and seedlings were pointed out of O. maculatum crossed with both O. Uroskinneri and O. Vuylstekei. O. Hallio-crispum × madrense is represented by a good-sized plant, and we noted also O. mirificum × crispum Mossiæ, O. nævium × crispum, and a batch of O. Ossulstonii. O. Adrianæ × Pescatorei was in bloom, but was an ordinary form, with large dark blotches on the sepals.

Mr. Moss has a very able lieutenant in the person of Mr. Kench, a keen cultivator, who has long presided over the various departments of an interesting general garden, where Orchids may be regarded as first favourites. Mr. Kench is a keen hybridist, and has a careful record of all the crosses made, which Mr. Moss posts up into a book when the seedlings are pricked off, and thus there is a complete record of everything raised in the collection. Mr. Kench could probably relate some interesting experiences,

for the work has been in hand a good many years, and the present success is the result of keen powers of observation and a good many experiments, with doubtless the usual crop of failures. One matter on which the evidence is conflicting is as to the development of the fungus said to be necessary for the germination of Orchid seedlings, but Mr. Kench has an idea that the spores are present in the Odontoglossum seed pod, and that they germinate with the young seedlings when the conditions are right. He also thinks that the fungus may develop when the seeds themselves are not fertile, in which case one might have the fungus without any Orchid seedlings. It would be a very interesting matter to know how far this fungus is subject to cultural control. One practical point, however, comes out of the experiments that have been made, namely, that no seed-bed is equal to that of a young growing seedling.

Mr. Moss has long found Orchid growing a delightful hobby, and we may congratulate him and his able gardener on the excellent condition of the collection, and also express the hope that the fascinating work of hybridising Odontoglossums and the allied genera, to which attention is now being specially devoted, will be attended with further success. We shall hope to hear of the progress of some of the promising crosses already mentioned.

ORCHIDS AT EWHURST, SUSSEX.

THE collection of Orchids formed by T. Daws, Esq., J.P., is a very representative one, and contains many features of interest. It may be described as essentially an amateur's collection, for the services of a skilled grower are not requisitioned, Mr. Daws himself undertaking such important matters as watering and potting. One thing which impresses itself upon an observer is the number of different genera which are successfully grown side by side, and this affords ample proof that every item in their culture has been mastered, and the general excellent health possessed by all the plants testifies to how well they are grown.

At the time of writing, Dendrobiums are making a fine display, those in bloom comprising many plants of D. nobile, Wardianum, Rolfeæ, Juno, nobile, and nobile Cooksonianum, one plant of the latter carrying thirty-seven of its curiously marked blossoms. Besides being heavily-laden with bloom, one plant of D. Rolfeæ has a new growth over three feet in length, and this should afford a grand display next season. Cypripediums are now mostly over, but there are still a few Calypso, insigne, Leeanum superbum, Actæus, and some Selenipediums out, including a plant of the rather rare S. Schrœderæ. Several unnamed seedling Odontoglossums are throwing up their flower spikes, and a good plant of O. Vuylstekeæ has just passed out of bloom. Odontiodas are well represented, comprising

well-grown plants of Bradshawiæ, Charlesworthii, grata, Lutetia, and Vuylstekeæ.

Oncidium tigrinum, with a spike of forty-seven blooms, is a very conspicuous object, whilst Miltonia cuneata is carrying five flower spikes, and a healthy pod of Miltonia spectabilis crossed with Oncidium is approaching ripeness. Two pods of Oncidium maculatum crossed with Odontoglossum Vuylstekeæ are swelling well. Several other Oncidiums, with Epidendrums and Calanthes, are in bloom, whilst a large collection of Cattleyas and their hybrids are growing well, and emitting plenty of roots. One plant calls for special mention ; it is Cattleya citrina, with seven perfect leads. Should they all flower the plant will prove a splendid attraction.

From the above short notes it will be seen that a very varied collection is possessed, and Mr. Daws must be congratulated on the remarkable health and vigour of all the Orchids. C. ALWYN HARRISON.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

Now that the sun is gaining in power, and that warmer weather is experienced, more shading and an increased amount of ventilation will be needed. The blind should be lowered as soon as the rays of the sun fall directly on the roof glass, and it should be left down until all fear of the plants being scorched is removed. Personally, for the purpose of shading, I prefer a blind made of scrim or tiffany to one of wood laths, as a more even shade is afforded by the use of the former.

Air can now usually be admitted through the top as well as the bottom ventilators, and from now to the close of autumn the house should always have a free current of air passing through, and on warm nights a little ventilation may now be safely given. The following is a sure test as to whether the atmosphere of the house is sufficiently ventilated for the well-being of the inmates. On entering, does it feel conducive to a lengthy stay or is it such that one feels stifled? If the latter, then it is at once apparent that there is too little ventilation.

The following figures may serve as a rough guide to the temperatures required this month :

By day, 55°-65° Fahr.

At night, 50°-60° Fahr.

Providing that an average of 55° Fahr. can be maintained at night without perforce closing the house unduly early in the afternoon to retain the heat, a fire is no longer necessary.

Plants will require watering more or less as advised last month, but much has to be left to the good judgment of the grower, for climatic conditions vary in different parts of the country, and moreover Orchid

houses, even in the same locality, vary considerably in their power of retaining moisture. As regards damping down I like to do this about 9.30 a.m., before the shading is lowered, thoroughly wetting the path, staging, pots, and earth underneath. If handy, this operation can be more quickly and effectively performed if a hose with a fine spray is used than by mere syringing. Damping should be done again about three p.m., when the blind is raised, and this time the plants themselves may receive a slight sprinkling. Be careful to use only rain water for application to the plants, and probably for the spraying of the Orchids a fine syringe will be best.

Cymbidiums Lowianum and Tracyanum will probably be opening their buds, and considering that, if kept cool and dry, the blooms will remain eight to ten weeks in perfection, they are without doubt some of the best for amateurs' collections. Lycaste Skinneri, also, should be in bloom during this month, and its fleshy pink flowers possess long lasting qualities. Care must be taken to prevent any water from touching the blossoms, or they will immediately become spotted with brown, and be disfigured.

This is a suitable season for procuring any imported Cool house Orchids, as many cases of them arrive during this month. As soon as any plants are received, pot them up singly in pots small in proportion to their size, and only in crocks. Give only enough water to prevent the bulbs from shrivelling, but damp surroundings are necessary. After several weeks young roots will be seen to be forming, and then the plants should be repotted as practised for established Orchids, and treated accordingly, with perhaps a slight increase in the amount of crocks employed, and a small decrease in the supply of water.

Suggested Additions.

Odontoglossum eximium.—This is a magnificent secondary hybrid raised from O. crispum and ardentissimum, which is a robust-growing plant, and produces in the spring months a long flower spike, bearing large well-shaped blooms, the sepals and petals of which are white, more or less spotted with reddish brown, whilst the lip is similarly coloured, and has a beautiful yellow crest. It has been in existence several years, and healthy seedlings, which would blossom from their next bulb, can be procured at a reasonable price.

Inconstancy of Unit-characters.—To the mutationist unit-characters are as changeless as atoms and as uniform as the capacity of a quart measure. . . . *Actual* unit characters are modifiable under selection; only one blindly devoted to a contrary theory will be able long to shut his eyes to this fact. For several years I have been engaged in attempts to modify unit-characters of various sorts by selection and in every case I have met with success.—Castle.

ANGRÆCUM EICHLERIANUM.

THIS distinct and striking Angræcum has been known for upwards of thirty years, having originally flowered in the Royal Botanic Garden, Berlin, in 1882, when it was described and figured by Dr. Kränzlin (*Berl. Gart. Zeit.*, 1882, p. 434, fig. 102). It is said to have been introduced from Lunda, near Kassamba, in the gorges of the Loango River. Afterwards it was sent from the South Cameroons by Braun. For some years it remained rare, but in 1898 drawings of an Angræcum from Old Calabar, Nigeria, were sent to Kew by Mr. J. H. Holland, Superintendent of the Botanic Gardens, Old Calabar, and proved identical. They were accompanied by living plants, which flowered in 1900, and the species was soon afterwards

Fig. 27. ANGRÆCUM EICHLERIANUM.

figured in the *Botanical Magazine* (t. 7813). In 1896 a plant that had been introduced from the Congo by M. S. Bieler flowered in the Brussels Botanic Garden, and was described and figured under the name of Angræcum Arnoldianum (De Wildem. in *Trib. Hort.*, i. p. 83, t. 6), but proved identical with A. Eichlerianum. The plant here figured is reproduced from a photograph taken by Mr. E. Miethe in the Palmengarten, Frankfurt, last July. The species has erect stems, bearing numerous aërial roots, ovate-oblong, somewhat bilobed leaves, and axillary one- or two-flowered racemes of large light green and white flowers. The three spotted leaves belong to an Aroid (Scindapsus pictus) that was growing behind.

KEW NOTES.

Some very interesting Orchids are flowering at Kew, but the houses are temporarily closed to the public on account of the recent suffragette outrages. The plant of Eulophiella Elisabethæ is in robust condition and bearing five spikes. It requires warm house treatment, and an abundance of moisture during the growing season. Eria hyacinthoides is a Javan species, and very effective when well grown. It now bears thirty-four spikes of pure white flowers. Megaclinium Bufo is a curious plant which was described by Lindley over seventy years ago, and soon lost sight of, but was recently re-introduced by Mr. J. Anderson from the Gold Coast, with M. eburneum in the same clump. Cirrhopetalum campanulatum is a charming little plant in a five-inch pan, and bearing five of its elegant umbels

Fig. 28. Cirrhopetalum campanulatum.

of purple-rose flowers. It has more than doubled in size since the annexed photograph (fig. 27) was taken three years ago, and has frequently flowered since. The remarkable viscous secretion which exudes from the flowers may be seen in the figure, in hanging drops at the end of the sepals. Physosiphon Lindleyi, grown in a six-inch pan, is bearing twenty-eight spikes of orange-red flowers, which remain long in perfection. Odontioda heatonensis is a gem, bearing seven beautiful spikes. Sarcochilus Fitzgeraldii and S. Hartmannii are also flowering well, together with the handsome Aërides Houlletianum, Dendrobium teretifolium, and a lot of other showy Dendrobiums, species and hybrids.

CALENDAR OF OPERATIONS FOR APRIL.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE outside conditions are now more favourable for the plants grown under glass, and the greater amount of light we have recently experienced has had a most stimulating effect upon all Orchids. It is astonishing the influence light has upon the plants at this season of the year, how it apparently stiffens up the limp and flaccid growths. Everything now will be on the move; new roots are pushing, together with new growths, and things in general will move very rapidly, and where large quantities of Orchids are grown some amount of forethought and energy will be necessary to keep pace with the times, as regards repotting and other details.

TEMPERATURES.—The increased temperatures advised last month may continue now right through the growing season, an exception, of course, being made in the case of the Cool house, which should be kept as cool as possible during the summer months. Artificial heat should be discontinued here as early as possible, as fire heat is of no benefit to these plants, and should only be used to maintain the temperatures at the proper figures.

WATERING.—The plants will now begin to take up more water at the roots, and with the longer and brighter days evaporation will take place rapidly, therefore more water should be given to the plants and the supplies of atmospheric moisture should be increased. The more humid conditions will be conducive to healthy growth, but excess in either case must be strictly guarded against.

VENTILATION must have attention at all times, and I am certain if this question had more attention we should not see so many Orchids in such a bad condition as we often do. The proper proportions of heat, air, and water are the main factors in the cultivation of garden plants, and Orchids are no exception to the rule. Stuffiness should not be allowed in any of the divisions, but the usual precaution against draughts must be observed.

SHADING will now require attention, and it will be well to repeat the advice concerning the benefits of shading Orchids during early spring. It is well to remember that when emerging from the dull weather of winter the plants are somewhat soft, and the growths are limp and flaccid, and such growths therefore are unable to withstand sudden or long spells of bright sunshine. The plants should be gradually inured to the light and sun, as by neglecting to shade them at this season much harm may accrue, and many plants may be disfigured for several seasons.

DENDROBIUMS.—As the species and hybrids pass out of flower, and commence to push forth new growths and roots from the base of their pseudobulbs, any necessary repotting should be attended to. The disturbance of plants well established in good material should be avoided,

and only the loose, sour, and decomposed compost should be picked out with as little disturbance as possible. Well-drained pots, pans, or baskets are suitable receptacles for these plants, and the potting compost should consist of equal portions of peat, polypodium and osmunda fibres, and sphagnum moss. Pot the plants moderately firmly, keeping the base of each plant slightly below the rim of the receptacles. During the early stages of growth only sufficient water should be given to keep the plant plump and the rooting material moist, but when the roots enter the new material more liberal supplies may be given. From the time that the plants are established until their pseudobulbs are fully developed a hot, moist buoyant atmosphere is necessary. The plants delight in a clear light, but at the present time, owing to their being repotted, shading is necessary. Young seedling Dendrobiums may also be repotted at this season. The usual methods of propagation, by cutting the bulbs into lengths and sticking them into pots of clean sand, or laying them upon growing sphagnum moss may be practiced.

Miltonias.—Plants of Miltonia vexillaria and its hybrids that are pushing up their flower spikes must not be allowed to suffer for the want of water at the roots, but a moderately dry atmosphere must be maintained, or there is a danger of the flowers becoming spotted. When the flowers are opened under cool conditions, as advised last month, they are of a much better colour, and last longer in bloom.

Cattleyas, Lælias, and Læliocattleyas.—Any necessary repotting must be attended to when these plants have passed out of bloom and are making new roots. There will be quite a number of the hybrids as well as some of the species, which will arrive at the proper stage during the present month, and it is wise to carefully note the plants so that they may be done before the roots attain any great length, when there is less danger of their getting broken or injured. If this routine is carried on systematically each one will get attention in its proper season, and many Cattleyas resent disturbance at the roots at any other time. Cattleya gigas, C. aurea, and their hybrids are now starting vigorously into growth, and must be carefully watered until the growths get nicely away, when they may have more liberal supplies. They should all be placed in the warmest position in the Cattleya house. Lælia anceps that are in need of repotting should be completed at once, as they delight in a long season of growth, and if left too late they often fail to re-establish themselves.

Lycastes.—Plants of this genus, species or hybrids, will develop new growths as they pass out of flower, and any that are in need of new rooting material should be repotted. Specimens that are potbound should be given larger pots, sufficiently large to acommodate them for at least two seasons. Plants that have lost their roots, from a too liberal supply of water or from

any other cause, should be carefully shaken out and placed in pots just large enough to hold them. Dead and decayed roots should be removed. Lycastes succeed in a similar compost to the green-leaved Cypripediums.

PHAIUS.—The species and hybrids of this genus will also require attention at this season as regards repotting. They succeed in a similar compost to that advised for Lycastes. Owing to the large quantity of water required at the roots when in full growth, it is essential that the pots should be well drained. With the exception of P. tuberculosus, which delights in a high temperature, an intermediate temperature will answer their requirements.

SPATHOGLOTTIS.—These useful Orchids also succeed in a similar compost to the two preceding genera, and will now need attention as regards repotting. The plants require the temperature of the warmest house, and must not be exposed to strong sunshine at any time. When in full growth they require liberal supplies of water at the roots, and frequent spraying on the undersides of the leaves, to prevent attacks of red spider and other pests.

CATASETUMS, CYCNOCHES, and MORMODES.—As the young growths of these quaint and fascinating Orchids are seen to be pushing from the base of the pseudobulbs they should be repotted. They require this attention annually, and succeed in a similar compost to Cattleyas. The pots must be well drained, and the plants potted moderately firmly. The pseudobulbs should be made secure, as, being heavy, they easily sway about, and if this is allowed they cannot establish themselves properly. No water must be given to the plants for some considerable time, as should the compost become wet from any cause there is a danger of the young growths decaying. The plants like a light position in the warmest house when in active growth, and should be rested in the same way as Dendrobiums.

CŒLOGYNE CRISTATA, as the plants commence to make new growths, may be repotted. Those that are in good condition should not be disturbed, as no Orchid resents being pulled to pieces more than this, and after being disturbed it often shrivels much. Where a considerable stock of this old favourite is grown it is desirable to repot a few plants each year, as they seldom flower satisfactorily the first year after being disturbed, in fact it is the best practice to remove any flower spikes which appear that season. A compost similar to that used for the green-leaved Cypripediums will answer their requirements. Any other Cœlogynes that have passed out of bloom and are making new growths may also have attention. The sweet-scented C. sparsa must not be overburdened with compost about its roots. The majority of these plants delight in an Intermediate house temperature during the summer months, and when well established and in full growth, an abundant supply of water at the roots.

Anguloas that are pushing up their flower spikes are best potted directly the flowers fade. Use a similar compost to that advised for Cœlogynes. They are best grown in pots, which must be well drained, in fact no Orchid will succeed in a badly-drained compost. These plants grow best in a light position in the Intermediate house. They must be sparingly watered after repotting, but when well established a liberal supply should be given. No moisture should be allowed to remain in the centres of the young growths.

Maxillarias.—Those species of Maxillaria which flowered during the winter months, and are now becoming active at the roots, should be repotted if in need of fresh rooting material. These plants will succeed either in pots, pans, or baskets, and a compost comprised of equal parts of peat, polypodium and osmunda fibres, and sphagnum moss will answer their requirements. After being disturbed they should be placed in a shady position, and watered carefully for some time. M. Sanderiana and others that flower at this season should not be potted until their flowering period is over. All these species will succeed either at the warm end of the Cool house, or the Cool end of the Intermediate house.

Aërides, Saccolabiums, and Angræcums that require new compost should have attention at once, as with the more favourable conditions of growth they will push roots rapidly. Plants of similar character that are inmates of the East Indian house may also have attention, should they be in need of it. A suitable compost for this class of plants is made up of equal portions of osmunda fibre and sphagnum moss, cut up moderately finely and mixed well together.

Oncidiums.—Those Oncidiums which flower during the winter months will now be starting into growth, and if in need of fresh rooting material may have attention whenever new roots are seen to be pushing from the base of the new growths. Oncidiums succeed in a similar compost to Odontoglossums, but they may have a more liberal supply of half-decayed oak leaves given them. Those that are now developing flower spikes may have water afforded them whenever they become dry.

Odontoglossum citrosmum.—As the flower spikes are observed to be pushing from the centres of the young growths, they may have slightly more water at the roots. As soon as the flowers are over the plants may be given new rooting materials, should they be in need of it. Not being a strong rooting subject, the receptacles should not be over large. They will succeed either in pans or baskets in a light position in an Intermediate house. The usual Odontoglossum compost will answer their requirements.

General Remarks.—We have again reached the busy season, and, like our plants, must become active, as Nature is exacting in her demands, and unless each plant receives its exact requirements at the proper time, the best results cannot be looked for. This, in practice, may be hard to

achieve, but those who do their best at least deserve success. All insect and other pests, which at this season especially may do irreparable harm, must be diligently searched for and eradicated. A clean start means, in most cases, a clean ending.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held in the Royal Horticultural Hall, Vincent Square, Westminster, on March 4th, when there was a fine display of Orchids, and the awards consisted of four medals, one First-class Certificate, six Awards of Merit and two Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., J. S. Moss, Stuart Low, Gurney Wilson, F. Sander, R. G. Thwaites, F. J. Hanbury, F. M. Ogilvie, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, W. P. Bound, J. E. Shill, H. G. Alexander, W. Bolton, de Barri Crawshay, W. H. White, A. Dye, S. W. Flory, and C. Cookson.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged an interesting group of rare species, including the handsome *Zygopetalum rostratum*, *Acanthophippium bicolor*, *Bulbophyllum barbigerum*, *Pleurothallis Grobyi*, *Cirrhopetalum picturatum*, *Dendrobium fusiforme* with six racemes, and others.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent the handsome *Odontoglossum Lawrenceanum* Cobb's var., with very large flowers, a fine *Odontioda Bradshawiæ*, *O. Cooksoniæ* The Gem and Cobb's var., and *Sophronitis grandiflora* Cobb's var.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), sent a very fine form of *Odontioda Bradshawiæ* with a spike of thirteen flowers.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed fine forms of *Odontioda Bradshawiæ*, Charlesworthii, and *Zephyr*, *Odontoglossum* Twyford Gem (*Rossii rubescens* × *formosum*), a very pretty hybrid, having the sepals and petals spotted with dark red and the lip bright rose-purple, and *Brassocattleya* Dora (*C. Trianæ alba* × *B.-c.* Veitchii Queen Alexandra), a very promising white flower with a greenish tinge on the sepals and lip.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent *Odontoglossum percultum* var. Mrs. Goodson, a handsome variety, *O.* armainvillierense, and *O.* Captain Humphrey, of unrecorded parentage, but apparently partly derived from *O. Uroskinneri*.

M. H. Graire, Amiens, France, sent *Odontoglossum* Saturne

(nebulosum × Harryano-crispum) a blush white flower, spotted with brown, and most like the former in character.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent a fine spike of Eulophiella Peetersiana with seventeen flowers and buds, which had been in flower for the last month.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent the handsome Odontoglossum Harwoodii Shrubbery var., and Odontioda Charlesworthii Shrubbery var., a very fine richly-coloured form.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Sophrocatlælia Marathon Ashtead Park var., a handsome rose-purple flower, with claret-coloured front lobe to the lip.

Messrs. Sander & Sons, St. Albans, staged a very fine group, including some good Dendrobiums and Odontoglossums, noteworthy among the latter being O. princeps (O. crispum Luciani × Lawrenceanum), a handsomely-blotched flower, O. Thompsonianum, Renanthera Imschootiana, Cattleya Parthenia Prince of Wales, some fine C. Trianæ, Brassocattleya Maroniæ, Odontioda Bradshawiæ, Lycaste gigantea, and other good things (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a group of choice Orchids, including the rare and handsome Phaius simulans with three spikes, Sarcochilus Hartmanni with eight spikes, and S. Fitzgeraldi with five spikes, several well-flowered plants of the charming Angræcum citratum, Cattleya Trianæ Backhouseana, good forms of Odontoglossum Jasper, O. Elaine, and Odontonia Cybele (O. cirrhosum × Miltonia candida), a remarkable hybrid, having lanceolate sepals and petals, white blotched with chestnut red, and the lip ovate, acuminate and crisped, the column white, with some red markings at the base, and some similar blotches in front of the crest (Silver Banksian Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a good group, including some good Cattleya Trianæ, white and coloured forms of Lycaste Skinneri, Angræcum sesquipedale, the brilliant Sophronitis grandiflora, Dendrobium nobile virginale, D. Findlayanum, and others, Masdevallia Hincksiana, M. caudata, &c. (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a pretty group, including Cattleya Suzannae Hye de Crom, some good C. Trianæ, the variety Painted Lady having broad purple handsome petals, the rare D. linguæforme, Cœlogyne pandurata, Ansellia africana, Cypripediums, &c. (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a good form of Dendrobium Sybil, raised from D. crassinode and D. Linawianum. The original record was D. Linawianum × bigibbum, but the latter has long been suspected, and now proves erroneous.

Messrs. Hassall & Co., Southgate, sent Brassocattleya Veitchii Queen Alexandra, a good B.-c. Menda, a fine white Odontoglossum crispum, and a few hybrid Odontoglossums.

Mr. W. A. Manda, St. Albans, sent a good form of Cattleya Schrœderæ and a selection of C. Trianæ.

Messrs. J. & A. A. McBean, Cooksbridge, sent Odontioda St. Fuscien, and a fine Cattleya Tityus var. Excelsior (Enid × Octave Doin).

Messrs. James Veitch & Sons, Chelsea, showed a fine plant of Eulophiella Elisabethæ with two spikes of flowers.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM EXIMIUM ALPHA.—A large and remarkably handsome form, having the flowers closely blotched with claret red, with only the margins and some narrow lines between the blotches white. Exhibited by Messrs. J. & A. A. McBean, Cooksbridge.

AWARDS OF MERIT.

CATTLEYA TRIANÆ COLOSSAL.—A remarkably large and handsome form having broad rose-purple sepals and petals, and the much crisped lip claret purple in front of the orange disc. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander).

DENDROBIUM BIGIBBUM LADY COLMAN.—A charming blush white variety. Exhibited by Sir Jeremiah Colman, Bart.

LÆLIOCATTLEYA SMILAX PRINCE OF ORANGE (L.-c. Charlesworthii × C. Enid).—A handsome form, having deep orange-coloured flowers, with the front lobe of the lip claret. Exhibited by Messrs. J. & A. A. McBean.

MILTONIODA HARWOODII Moss's var. (C. Nœtzliana × Miltonia vexillaria).—A very fine form, having the flowers deep magenta-rose in colour. Exhibited by J. S. Moss, Esq., Wintershill Hall, Bishops Waltham (gr. Mr. Kench).

ODONTIODA MOSSIÆ (C. Nœtzliana × Odontoglossum maculatum).—A very distinct hybrid, having broad magenta-rose sepals and petals, and an expanded three-lobed lip, salmon buff in colour. Exhibited by J. S. Moss, Esq.

ONCIDIODA COOKSONIÆ RALLI'S VAR. (C. Nœtzliana × Oncidium macranthum).—A richly-coloured form, having broad, reddish orange flowers, with a yellow apex to the lip. Exhibited by Pantia Ralli, Esq., Ashtead Park.

CULTURAL COMMENDATIONS.

CŒLOGYNE PANDURATA.—To Mr. J. E. Shill, gardener to Baron Bruno Schröder, The Dell, Englefield Green, for a fine specimen, bearing two spikes of its large green and black flowers.

SOPHROLÆLIA PSYCHE.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a well-grown plant with about sixty flowers.

At the meeting held on March 18th there was again a fine display, and the awards consisted of six medals, one First-class Certificate, four Awards of Merit, and two Cultural Commendations.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), J. O'Brien (hon. sec.), R. A. Rolfe, Sir Jeremiah Colman, Bart., J. Wilson Potter, F. Sander, R. G. Thwaites, F. M. Ogilvie, F. J. Hanbury, T. Armstrong, A. McBean, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, S. W. Flory, C. J. Lucas, W. Bolton, J. S. Moss, de Barri Crawshay, and Gurney Wilson.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent the very distinct and striking Brassocattleya Alexanderi, Brassocatlælia Figaro (B.-l. Jessopii × B.-c. Leemanniæ), a very distinct yellow flower, with some rosy brown markings on the lip, and Odontoglossum Griselda, a large yellow hybrid, with some red-brown blotches about the centre of the segments.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent Odontioda Cooksoniæ The Gem, a fine scarlet form.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent cut flowers of a beautiful series of hybrid Dendrobiums, among which the fine D. Lady Colman was noteworthy, also the rare Queensland D. Smilliæ and D. Johannis.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent a small group, including the fine Odontioda harvengtense Crawshayanum, O. Nerissa, O. Solon, two pretty forms of Odontioda Bradshawiæ, one having orange-coloured sepals and petals and a more yellow lip, a good O. Charlesworthii, and the pretty orange-coloured O. Carmen.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed Odontoglossum James O'Brien (Duvivierianum × harvengtense), having light yellow sepals and petals, with large claret-brown blotches, and a large blotch on the lip, which is nearly white in front, Sophrocatlælia Hon. Barbara Wilson Orchid Dene var., and Cattleya Suzanne Hye de Crom Orchid Dene var., having the sepals tinted with rose, and the front of the lip rose-purple.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Læliocattleya Charmien (C. Trianæ alba × L.-c. bletchleyensis), a large white flower with some lilac markings on the lip.

M. Jules Hye de Crom, Ghent, showed the fine Miltonia Hyeana Stella, bearing four spikes.

F. M. Ogilvie, Esq., The Shrubbery, Oxford, showed Odontioda Red Riding Hood (Odontoglossum Rossii × Odontioda Bradshawiæ), most like the former in general character but with red markings.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Cattleya Trianæ Empress of India, a large and well-coloured form.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed Cattleya Schrœderæ Madame Dina Beaumer, a large white flower, with faint lavender tinge on the lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, containing many showy Dendrobiums, Læliocattleya Olivia, several yellow hybrids with the front of the lip claret coloured, a pretty Læliocattleya from C. Percivaliana × L. anceps Schrœderæ, having blush white flowers with some brown markings on the yellow disc of the lip, Odontioda Cupid, heatonensis, Charlesworthii and Bradshawiæ, Miltonia Bleuana, and a few good Brassocattleyas, Cymbidiums and Odontoglossums (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including good examples of Phaius tuberculosus and P. simulans, the rare Eulophiella Elisabethæ, Odontioda Charlesworthii, a beautiful example of Odontoglossum armainvillierense xanthotes, O. eximium, Cattleya Suzanne Hye de Crom, the fine Læliocattleya Dominiana var. Prince of Wales, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a fine group, including Dendrobium Wardianum, D. Brymerianum, some good Cattleya Schrœderæ and C. S. alba, Læliocattleyas, Oncidium concolor, Sophrolælia Leda, and other good things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including good forms of Cattleya Schrœderæ, Brassocattleya Leemanniæ, three of the fine purple B.-c. Siren, Cœlogyne flaccida, Trichopilia suavis, Masdevallia elephanticeps, Vanda cœrulescens, Sarcochilus Fitzgeraldii, Renanthera Imschootiana, Læliocattleya Electra (L. Latona × C. Trianæ), Odontoglossum Landolphus, O. Niobe (elegans × armainvillierense), O. eminens (spectabile × Arlequin), O. Groganii, and others (Silver Flora Medal).

Mr. Sidney Flory, Tracy's Nursery, Twickenham, staged a good group, including examples of Oncidium concolor, O. Cavendishianum, the rare Eulophia Saundersiana, Cœlogyne sparsa, Pleurothallis Grobyi, Odontoglossum Pescatorei, Clytie and Phocis, Cattleya Trianæ alba, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a good group, including Cattleya Lueddemanniana Stanleyi, two good Angræcum sesquipedale, Renanthera Imschootiana, Brassocattleya Menda, Odontoglossum Ossulstonii, and others (Silver Banksian Medal).

Mr. J. Evans, Manor House, Key Green, Congleton, showed a rich red-flowered form of Oncidioda Cooksoniæ.

Mr. E. V. Low, Vale Bridge, Haywards Heath, showed Lycaste Skinneri alba, Cattleya Schrœderæ, and a pretty Læliocattleya (L.-c. luminosa × C. Trianæ).

First-class Certificate.

Brassocattleya Cliftonii magnifica (B.-c. Veitchii × C. Trianæ Uplands var.).—A remarkably fine form, having rosy mauve sepals and petals, and a deep rose-purple lip, with a paler fringed margin. Exhibited by F. Menteith Ogilvie, Esq.

Awards of Merit.

Cattleya Magnet (Mossiæ × Whitei).—A very richly-coloured hybrid, bearing four fine rose-purple flowers, and the lip entire, with some claret-coloured veining. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O.

Cattleya Tityus Shrubbery var. (Enid × Octave Doin).—A handsome variety, having broad blush white sepals and petals, and the lip broad and crimson in front of the yellow disc. Exhibited by F. M. Ogilvie, Esq.

Cattleya Trianæ alba Souvenir de Louis Verdonck.—A very fine pure white form. Exhibited by M. Jules Hye de Crom.

Odontoglossum crispum Cobb's var.—A very fine white form, bearing a spike of fourteen flowers, with a large red-brown blotch on each segment. Exhibited by Walter Cobb, Esq.

Cultural Commendations.

Odontioda Bradshawiæ.—To Messrs. Charlesworth & Co., for a strong plant, bearing four panicles, and producing a very fine effect.

Odontoglossum Rossii and O. pulchellum.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a very fine pan, containing several varieties of O. Rossii, and two plants of O. pulchellum, the best bearing eleven spikes.

Manchester & North of England Orchid.

At the meeting held at the Coal Exchange, Manchester, on February 20th the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, J. Evans, A. Hanmer, D. McLeod, W. J. Morgan, C. Parker, F. K. Sander, H. Thorp, Z. A. Ward, Wm. Thompson, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a group of well-grown Odontoglossums and Cypripediums in variety, with Lycaste Skinneri alba.

Silver Medals were awarded to S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Col. Rutherford, M.P., Blackburn (gr. Mr. Lupton); and Messrs. Cypher & Sons, Cheltenham, for good mixed groups. Col. Rutherford's group contained a promising Brassocatlælia (C. Octave Doin × B.-l. Gratrixiæ).

A Bronze Medal was awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a group of well-grown Cypripediums.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Mr. J. Birchenall, Alderley Edge; Messrs. J. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Great Horton.

AWARDS OF MERIT.

Cypripedium West Point Monarch (Mrs. Cary Batten × Alcibiades), and C. Lady Dillon "West Point" var. (nitens "Ball's" var. × Mrs. Mostyn), both from S. Gratrix, Esq.

Cattleya Trianæ Snowflake, from Messrs. A. J. Keeling & Sons.

AWARD OF APPRECIATION.

Odontioda Schrœderi (Odontioda Bradshawiæ × Odontoglossum crispum), from Mr. W. Shackleton.

CULTURAL CERTIFICATE.

Odontoglossum crispum Leonard Perfect, a very finely-grown plant with a spike of fourteen flowers, from S. Gratrix, Esq., Whalley Range (gr. Mr. Brown).

At the meeting held on March 6th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, J. Evans, Dr. Hartley, J. Lupton, D. McLeod, G. Morris, F. K. Sander, W. Thompson, H. Thorp, A. Warburton, Z. A. Ward, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a beautiful miscellaneous group, including many well-grown Odontoglossums, Cattleyas, Dendrobiums, Odontioda Charlesworthii and keighleyensis, Miltonia Bleuana and Warscewiczii, with Cymbidium insigne and eburneum.

Large Silver Medals were awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); Col. Rutherford, Blackburn (gr. Mr. Lupton); and A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for choice miscellaneous groups.

A Silver Medal was awarded to Messrs. James Cypher & Sons, Cheltenham, for a nice mixed group, in which was a plant of the rare and pretty Sarcochilus Fitzgeraldii.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), was awarded a Bronze Medal for a good group of Cypripediums in variety.

Interesting exhibits were staged by J. J. Holden, Esq., Southport (gr. Mr. Johnson); W. Thompson, Esq., Walton Grange (gr. Mr. Howes); Mr. J. Birchenall, Alderley Edge; Messrs. Charlesworth & Co., Haywards Heath; Mr. D. McLeod, Chorlton-cum-Hardy; Mr. J. Evans, Congleton, and Messrs. Sander & Sons, St. Albans, the latter staging a fine group of Dendrobiums, Cypripediums, Odontiodas, Odontoglossums, and others.

First-class Certificate.

Odontioda St. Fuscien Ward's var. (O. Adrianæ × C. Nœtzliana), a good flower, very dark in colour, from *Z.* A. Ward, Esq.

Awards of Merit.

Cypripedium Richard Ashworth (Lathamianum giganteum × Leeanum Clinkaberryanum); Odontoglossum Cloth of Gold (Wilckeanum × amabile); O. Leeanum majus (Black Prince × General Roberts), all from R. Ashworth, Esq., Newchurch.

Odontioda Zephyr West Point var., and Cypripedium Duke of Marlborough (Leeanum Lavertonianum × Adrastus Mariæ, from S. Gratrix, Esq., Whalley Range.

Odontoglossum A. E. Thompson, parentage unknown, and Cypripedium Mrs. E. G. Guest (Thompsonianum × Alcibiades), from Wm. Thompson, Esq., Stone.

ORCHIDS FROM HESSLE.

We have received a beautiful series of Cypripediums from the collection of W. P. Burkinshaw, Esq., Hessle, E. Yorks (gr. Mr. J. T. Barker). Specially noteworthy among them is a fine twin-flowered scape of C. Euryades New Hall Hey var., having the dorsal sepal heavily blotched with dark purple on a white ground, and richly-coloured petals and lip. The shape is good, and as the green of the dorsal sepal is reduced to a small area at the base, it should make an excellent parent for hybridising from. C. Euryades King Edward VII. has a very dark, heavily-blotched dorsal sepal, recalling C. Boxallii atratum. It was raised in the collection. C. Chantecleer Hessle var. (insigne Harefield Hall var. × Thalia) is a very fine form, also raised in the collection, and having the dorsal sepal nearly three inches across, and very heavily blotched with purple on a white ground, with a small green basal area, and the petals broadly dilated at the apex, and suffused with purple. The clear white C. Boltonii is represented by a two-flowered scape, other fine things being C. aureum Surprise, C. Minos Youngii, C. Thompsonii magnificum, C. insigne Sanderianum, C. Leeanum Lavertonianum, C. chrysotoxum Victor, and C. Euryades Hessle var. A flower of C. insigne Harefield Hall var. is also enclosed, in which the lip has failed to free itself from the column, and thus is curiously crumpled up —probably an accidental occurrence. Other interesting things are the pure white Læliocattleya Boylei var. Kerchoveæ, a very charming thing, Brassocattleya Edgar Wigan, and a white form of B.-c. Veitchii (C. Mossiæ bellissima × B. Digbyana), a fine form, but not quite so pure in colour as var. Queen Alexandra. They form a very beautiful series, and illustrate the decorative value of the plants during the dull winter months.

ORCHIDS IN SEASON.

A PRETTY seedling of very good shape is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. The colour is yellow with a brown suffusion, and there is a marked resemblance to C. villosum and C. Leeanum in shape. We should have considered it as a form of C. aureum, but it is suggested that it may have come from C. Sallieri Hyeanum × œnanthum, from which several somewhat similar forms are said to have flowered. That would make it a form of C. triumphans, but there is none of the rich colouring of C. œnanthum about the flower. It is a form to be taken care of. A very beautiful form of Odontoglossum triumphans is also sent, having clear golden yellow sepals and lip, and one large warm brown blotch on the centre of each sepal. The absence of even a speck of brown from the petals and lip give it a very striking appearance. It is quite typical in shape, and keeps constant, for a notice appeared at page 126 of our nineteenth volume. It may be called O. triumphans var. Wrigleyi.

A flower of the very handsome Læliocattleya Sunset Southfield var. (L. Jongheana Cabralii × C. Percivaliana Westfield var.) is sent from the collection of W. Waters Butler, Esq., Southfield, Edgbaston. The flower is bright rosy mauve in colour, with the spreading shape of the former, and measures six inches from tip to tip of the petals, which latter are two inches broad. The lip is three-lobed, and much crisped, the front lobe being rosy mauve with a rich dark brown veined blotch, while the disc and interior of the side lobes are orange-coloured, with some brown down the centre and five obtuse keels. The two parents have formed a particularly happy combination, and the plant should develop into a very fine thing.

DENDROBIUM NOBILE COOKSONIANUM.—A fine plant of this handsome variety is now flowering in the collection of T. Daws, Esq., Ewhurst, producing an aggregate of thirty-seven blossoms, which are borne on exceptionally long stems. The peculiar maroon blotches borne on the petals of this Orchid render it very striking. The variety originally appeared as a sport in the collection of Mr. Theodore Lange, Heathfield House, Gateshead, whence it passed into that of Norman C. Cookson, Esq., but now has become fairly plentiful, thanks to the ease with which Dendrobiums can be propagated, and is one of the most delightful Orchids for an Amateur's mixed house. Several flowers of this plant have been cross-fertilised with a view to ascertaining whether it can be raised true from seed, as was the case with D. nobile virginale. In the same collection are also flowering, amongst other things, a plant of Oncidium maculatum and Odontoglossum Vuylstekeæ, which have been intercrossed. C. A. H.

THE HYBRIDIST.

LÆLIOCATTLEYA SYRINX.—Raised in the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, it is said from L.-c. Phœbe × Ballii, though there is no trace of the orange colour of Lælia cinnabarina, which should have come through both parents. It is a seedling flowering for the first time, and the flower is rather small at present, and the colour pink, with an orange yellow throat to the lip.

LÆLIOCATTLEYA PROMENÆA.—Raised in the same collection as the preceding, from a hybrid between L.-c. Gottoiana and Lælia Cowanii × Cattleya Frederickiæ. The flower is light rose-purple, with a very undulate lip. It is also a first flower from a small plant, and should improve much when the plant becomes strong.

ORCHID NOTES AND NEWS.

THREE meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during April, on the 1st, 15th, and 29th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on April 3rd and 17th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for May 1st, on which date the Annual Meeting will also be held.

The 17th Quinquennial International Horticultural Exhibition will be held at Ghent from April 26th to May 4th next. Judging will take place on April 25th. We may add that the name of Mr. John S. Moss should have been added to the list of jurors given at page 103.

The first part of a very interesting paper, entitled "Orchids, their popularity and culture," by Mr. H. G. Alexander, Orchid grower to Sir George L. Holford, K.C.V.O., appears at page 107. It was read at a meeting of the Bath and District Gardeners' Mutual Improvement Association, held at the Chandos Hall, Bath, on February 13th last. A full report appeared in *Keene's Bath Journal* for February 15th, for which we are indebted to a Bath correspondent.

THE KEW ORCHID HOUSE OUTRAGE.—Since our note at page 106 went to press the following has appeared :—At the West London Police Court on March 28th, Olive Hocken, 32, an artist, on whose premises the suffragette "arsenal" was found, was committed for trial on four charges of conspiracy, one of which was in connection with the damage to the

Orchid houses at Kew. On the previous day Maria Elizabeth Hall, a caretaker, said the accused was a tenant of the first floor of the premises at Campden Hill Gardens for about two years. The afternoon before the Orchid houses at Kew were damaged another lady was with Miss Hocken in the studio, and the same evening a motor car, driven by a lady, came, and some parcels and long wooden poles were taken from the studio and strapped to it. The car left the studio about 10.30 with Miss Hocken and another lady as passengers. About four o'clock next morning she heard the door bang and the noise of some one moving about. There was another lady with accused that morning. Witness had to clean two pairs of ladies' boots, and they were very muddy and had grass on them.

As to the Kew fire outrage reported at p. 74, we may add that one of the women has been sentenced to eighteen months' imprisonment, to find sureties for good behaviour for a further period of two years, and to pay the costs of the trial. The case of the other woman is not concluded, she having endangered her life through adopting the "hunger strike."

CYPRIPEDIUM BROADOAKSIENSIS (page 100).—Mr. F. Wrigley, Broadoaks, Bury, writes that this is a seedling purchased (the source is not stated), not raised in the collection.

ORCHID PORTRAITS.

ANGRÆCUM ANDERSONII, Rolfe.—*Gard. Chron.*, 1913, i. p. 146, fig. 65.

BRASSOCATTLEYA MENDA.—*Gard. Mag.*, 1913, p. 158, with fig.

BRASSOCATTLEYA VEITCHII THE DELL VARIETY.—*Gard. Mag.*, 1913, p. 183, with fig.

CATTLEYA TRIANÆ AND VAR. ALBA.—*Horticulture*, 1913, p. 369, with figs.

MEGACLINIUM TRISTE.—*Gard. Chron.*, 1913, i. p. 131, fig. 60.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.]*

T.M.H.—A good dark form of Dendrobium nobile. There is no evidence of its being a hybrid, and we presume that it came out of an importation. The term "Florists' flower" can only be applied to improved garden races.

E.T.—The flower is Lycaste gigantea, Lindl. It requires the usual Lycaste treatment.

C.K.—Dendrobium undulatum ; R. Br., A note is held over.

R.C.K.—A good light-coloured form of Cattleya Trianæ.

J.B.H.G.—Lycaste Luciani, a natural hybrid between L. Skinneri and L. lasioglossa.

Photographs received with thanks.—J.S.M. ; R.C.K. ; C.K.

Catalogues received.—Catalogue of the Monton Grange Collection of Orchids ; from Messrs. A. J. Keeling & Sons, Bradford. Catalogue of Orchids, Cacti, and other Mexican plants ; from Juan Balme & Co., Mexico City. Catalogue Général ; from M. Jules de Cock, Meirelbeke-Gand, containing a few Orchids.

RECEIVED.—*One and All Gardening*, 1913. From the Agricultural and Horticultural Association, Ltd., 92, Long Acre, London, W.C., a useful and well illustrated issue, but we do not find anything about Orchids.

THE ORCHID REVIEW.

VOL. XXI.] *MAY*, 1913. [No. 245.

ORCHIDS AT HAYWARDS HEATH.

VISITORS to the Royal Horticultural Hall on April 1st were greatly interested in a plant of Cymbidium Humblotii bearing a magnificent panicle of over 100 flowers, for which Messrs. Charlesworth & Co. received both a Cultural Commendation and a First-class Certificate. A few days later we had the pleasure of seeing half-a-dozen fine plants in bloom at Haywards Heath, one of them bearing two spikes, and the sight will not soon be forgotten. They came out of an importation of Madagascar Orchids received about two years ago. The plants when imported were in excellent condition, probably the finest consignment ever sent to Europe, and no difficulty was experienced in getting them to grow from the commencement. They were fixed on upright rafts of teak-wood, and a mixture of osmunda fibre and fibrous loam was worked along and under the rhizome, which proved to be an ideal rooting medium for them. The species should open up another field for the hybridist now that Cymbidium hybrids have been taken so much in hand since the introduction of the beautiful C. insigne. Of course it remains to be proved whether C. Humblotii will unite freely with the Asiatic species.

The importation of Madagascar Orchids just mentioned was a particularly fine one, coming to hand in splendid condition. It included, besides the Cymbidium, Eulophiella Peetersiana and E. Elisabethæ, Phaius tuberculosus (sent as a new species), and P. simulans, Grammangis Ellisii, Angræcum articulatum, citratum, Germinyanum, recurvum, eburneum, and sesquipedale. These all established themselves splendidly, with the exception of Eulophiella Peetersiana, of which only three were saved. These particular plants were sent home as found growing on a species of Pandanus, and the collector advised Messrs. Charlesworth not to disturb them, as he felt sure that they would establish themselves very quickly if potted up at once and put into a warm humid house. The result was anything but satisfactory, but of E. Elisabethæ every plant has done well and flowered this season. At the present time there are two magnificent specimens in flower, one with six spikes and the other with five (this having broad leaves and particularly fine flowers), besides smaller plants with one,

two, and three spikes each. It has seldom been seen in such fine condition.

Phaius simulans (so long called P. tuberculosus in gardens) was treated in the same way, and placed directly under the shade and protection of the Cymbidium, the spreading foliage of which, with its thick texture, gave to the more delicate and shade-loving Phaius the nearest approach to its natural conditions of growing that could be thought of, and the results have more than justified the most sanguine expectation. Over a dozen plants were in bloom, one bearing a spike of twelve flowers, and another had particularly dark markings on the lip. We have never before seen it in such fine condition and flowering in such profusion. On looking at these plants one could hardly realise that the species has proved difficult to grow. The position chosen is the south end of the Phalænopsis house, with adequate shading and special provision for aconstantly moist atmosphere. A warm, moist, well-shaded corner is evidently what this species requires. We need hardly say that the opportunity of using this beautiful Orchid again for hybridising is not being lost, and several of the Indian species have recently been in flower, as well as the hybrid P. Norman. Of course much of the ground has been covered before by the late Mr. Norman Cookson, but some of the hybrids are rare, and there is plenty of scope for further experiments. The single plant of P. tuberculosus was just passing out of bloom (see p. 144, fig. 29).

Other Madagascar Orchids in flower were Eulophiella Peetersiana with two very fine spikes, Angræcum sesquipedale and Germinyanum, nice batches of A. citratum and Sanderianum, several Æonia polystachya, one of them with over 20 spikes, giving a very graceful appearance, and the very distinct Aëranthes grandiflorus throwing up several spikes. In the same house we noted the rare Arachnanthe Cathcartii in bloom, with Bulbophyllum barbigerum, Listrostachys Chailluana, Phalænopsis Aphrodite and P. Stuartiana. A batch of strong plants of Grammangis Ellisii was interesting, also Eulophia paniculata with fleshy variegated leaves.

Passing to the fine range of seedling houses, it was interesting to begin where the seeds were germinating and the young seedlings pricked off, and thence to pass successively through the different houses where the plants are grown on until they reach the flowering stage. The process was repeated in both the warmer and cooler divisions, the latter being specially interesting because of the great progress being made in raising Odontoglossums and Odontiodas.

A house is devoted to Odontiodas of flowering size, and we noted in bloom forms of O. Bradshawiæ, Cassiope, keighleyensis, Hippolyta, Charlesworthii, Diana, Cooksoniæ, heatonensis, Craveniana, and others. We counted an aggregate of 141 spikes, including many of great beauty and very rich colouring. One form of O. Bradshawiæ bore a panicle with nine

side branches and seventy flowers, forming a picture. Many others were noticed elsewhere, and various secondary hybrids were beginning to flower, and showed great diversity in coloration. Three of these were specially striking, and as Messrs. Charlesworth kindly gave us a series of flowers it was possible to study them in some detail. Two forms of O. Royal Gem (Vuylstekeæ × Odontoglossum armainvillierense) were very diverse, one having a white ground with a large rosy blotch above the base of the segments and some small spots towards the apex, while the other had a rosy ground with numerous darker spots. Four seedlings of O. Joan (Charlesworthii × Odontoglossum armainvillierense) were producing their first flowers, and showed a wide range of variation. One had light yellow ground colour, and the sepals and petals barred with rich red brown, the lip being pandurate, with a large red-brown blotch in front of the crest, and numerous smaller spots at the base. A second was larger, and so much more blotched as to have only yellow lines all over the segments, while the similarly-coloured lip was deltoid in shape. A third was again larger, with a deltoid lip, and many basal spots, while the other segments were heavily blotched with red on a yellow ground. The fourth had almost brick-red flowers, with traces of yellow lines, and a deltoid lip with a very broad base. Lastly may be mentioned five seedlings of O. Patricia (Charlesworthii × Odontoglossum Phœbe), showing a remarkable range of variation. As they are described in the Scientific Committee's Report at page 167 their characters need not be repeated.

Passing along to Odontoglossums, another remarkable case of variation was pointed out. Odontoglossum Scottianum, named in compliment to Sir Benjamin Scott, of Carlisle, showed several distinct forms out of the same batch. The parentage is rather interesting, viz., O. oakwoodiense × armainvillierense. O. oakwoodiense is a plant of Mr. Cookson's, which we do not distinctly remember, but it is said to be either a form of O. Wilckeanum or a natural hybrid between O. luteopurpureum and some other species. The results obtained from crossing this with a finely spotted O. armainvillierense were very extraordinary. There were in flower plants which to the casual observer looked like pure spotted armainvillierense, others more like large plain Pescatorei, and some looking fairly intermediate but with the blotching more inclined towards the brown of the luteopurpureum. There is also a plain white form resembling a particularly good O. crispum, the flower being almost round, and of splendid substance. Upon looking at it carefully one can see a slight influence of O. luteopurpureum in the lip, but to all intents and purposes it looks like a pure crispum. One very pretty form had the ground colour of the lip clear yellow, and a tinge of the same colour in the sepals and petals, showing clearly a reversion to the ground colour of O. luteopurpureum.

A large number of other hybrid Odontoglossums were seen in bloom, and we were particularly struck with their sturdy growth, large firm bulbs, and the quality of the spikes and flowers, features that indicate the excellence of culture carried on here. Odontoglossums are not always seen in this condition, and we asked Mr. Charlesworth for the minimum winter temperature of the houses. His reply was 52° F. for the established plants and 56° for the seedlings. We have seen lower figures advocated, and we are firmly convinced that a low winter temperature is one of the causes of failure in Odontoglossum culture. We took notes of many interesting things, but have not space to enumerate those seen in bloom. A number of capsules told of further progress in hybridising, and many interesting experiments are in progress.

There are houses of seedling Cattleyas and Læliocattleyas, in all stages, and we were much interested in some of the crosses, and particularly with the experiments being made to increase the number of yellow-flowered hybrids, which, however, proves to be a very difficult business owing to the amount of reversion to purple that takes place. A batch of seedling Cattleya Dowiana aurea was pointed out, obtained from the best forms of this Cattleya without hybridisation, and this should give some excellent yellow forms when the seedlings flower. Several fine Cattleyas and Lælio-cattleyas were in bloom, and here, too, we noted some surprising examples of variation, particularly Brassolælia Gratrixiæ × Cattleya Octave Doin with both salmon-coloured and mauve varieties from the same capsule.

Among the species many fine things were in bloom, and we can only enumerate a few of them. A plant of the handsome Oncidium Claesii was bearing a long trailing spike with ten side branches, and a large number of its handsome purple flowers. A lot of Trichopilia Backhouseana were coming into bloom and promise a very fine display. A batch of Oncidium concolor showed the effect of massing, and the result was brilliant. Some Cattleya citrina were in bloom, one of them having a twin-flowered scape. There were two plants of the distinct reddish Polystachya paniculata blooming well. Several plants of the charming little Miltonia Phalænopsis were blooming freely, also a batch of M. Roezlii, while a house of M. vexillaria was a forest of spikes, and the plants in the most robust health. A promising seedling from M. vexillaria chelseiensis fertilised with M. v. memoria G. D. Owen was beginning to expand, and one could just see a large dark blotch on the lip. A fine lot of the handsome Phaius Norman, and a batch of Zygocolax Charlesworthii were also in bloom.

But we must close our note book, for it is impossible to enumerate a tithe of the interesting features of this model establishment, and we must congratulate Mr. Charlesworth and his manager, Mr. Smith, on the progress and excellent culture that are everywhere apparent.

ORCHID-CULTURE IN ENGLAND AND AUSTRALIA.

I SPENT six months of last year in England, during which time I attended the International as well as other Flower Shows, and perhaps a few observations from one who is trying with more or less success to grow Orchids in Australia may be interesting to your readers.

I am quite sure from what I have seen that England, notwithstanding its want of sunlight, is an ideal country for growing Orchids under artificial conditions; the soft moist air, mild temperatures, and absence of scorching sun, such as we have here, give English growers advantages which few others possess. No doubt English gardeners in all departments of horticulture are extremely skilful, but I think the much maligned English climate has a great deal to do with the magnificent results attained. I can only say that the high cultivation and the splendid quality of the Orchids shown at the International has exceeded anything we could ever hope to attain to in this part of Australia. I have never seen Cattleyas shown here that would compare with them, and the same remark applies to most other varieties.

Here in Sydney our climate is too cold and changeable to grow the majority of the more hardy Orchids in the shade- or bush-house as they do in Queensland, and yet it is hot enough to make their cultivation under glass somewhat difficult. Glass houses here in the summer are apt to become too hot altogether unless heavily shaded, and we have considerable difficulty on account of the dryness of our atmosphere in keeping the humidity necessary in the houses with a sufficiency of ventilation. We are largely dependent on English gardening publications, including the valuable *Orchid Review*, for hints as to how the various kinds shall be grown, but such information in our climate is often most misleading, and finally we have to gain our local experience.

Cattleyas and Læliocattleyas I am growing under much more shade than is recommended in England. The glass has a good coat of paint and the lath blinds are let down during the hottest part of the day, but in the winter season we give them more light. The plants are sprayed over once or twice a day during the growing season, according to the weather and atmospheric conditions. Owing to the scarcity of labour in this country all the watering has to be done in this way. Under these conditions I am getting fair results, but nothing approaching the English standard of culture.

Dendrobium nobile and its hybrids we keep in a well-ventilated but lightly-shaded house during the growing season, but as soon as the plants have made their growth in the autumn we put them in a shade- or bush-house with a few sheets of glass over them to keep off excessive rain. They

are practically in the open air till they show their flower buds. Plants thus ripened off flower and grow well with me.

The hardier Cypripediums grow and flower well in a cool, shaded glass-house with no artificial heat, and with the ventilators and usually the door open all the year round night and day. The plants do not grow so vigorously or propagate so quickly as they do in England, but such difficult varieties as C. Fairrieanum and C. Charlesworthii do fairly well under this treatment. I have plants of C. insigne and C. villosum thriving in the open bush-house. Lælia anceps I could never get to flower when grown under glass. I am now growing them successfully hanging from the roof of the bush-house; they do not, however, show the vigour of the plants grown in England. Dendrobium nobile tried under similar conditions absolutely failed.

Cymbidium Lowianum, also the hybrid C. Lowiano-eburneum, grows most vigorously and flowers well in the open air in any partially-shaded position, and I have several specimen plants in tubs which measure four feet across.

It is quite impossible to grow Odontoglossums or the cooler Orchids in this warm climate. Our main difficulties in Orchid culture are the sudden changes of temperature and humidity, and the excessive heat and dryness of the atmosphere.

In conclusion, allow me to bear testimony to the wonderful hospitality accorded to myself and other visitors from Australia by the Committee of the Royal International Horticultural Exhibition. We were most generously entertained, and we took it as a great compliment to our adopted country.

ARTHUR YATES.

Sydney, N.S.W.

CŒLOGYNE PANDURATA.

A RECENT issue of *Horticulture* gives a figure of Cœlogyne pandurata, which is described as an ideal flower for St. Patrick's Day. "How ridiculous it seems to dye white carnations green for St. Patrick's Day!" remarks Mr. M. J. Pope, who has on numerous occasions been asked what is the name of these green pinks which people see in the florist's store prior to and on St. Patrick's Day, but at no other time of the year. Now, if florists are anxious to serve the dear people from the Emerald Isle with green flowers on St. Patrick's Day, why don't they look around Nature's storehouse first and see what they can find in that line before degrading our honourable profession by putting a faked article on the market. Cœlogyne pandurata has the most lovely shade of green anybody could possibly ask for, and it usually blooms about this time. The only part of the flower that is not green is the pandurate lip, which has some jet black blotches bordered in

part with white. Too bad that the lip isn't harp-shaped instead of fiddle-shaped! How appropriate it would be! Like all Cœlogynes, it is of the easiest possible culture; a shady place in a warm greenhouse or stove will suit it. During the growing season it must have a liberal supply of water, and it must not be kept dry for any length of time, even during the resting periods.

ORCHIDS OF THE FLORA CAPENSIS.

THE appearance of a first part of the Orchids of the *Flora Capensis*, by Mr. R. A. Rolfe, A.L.S., was mentioned at page 376 of our last volume, and the concluding part having now appeared a short summary may be attempted. Orchids occupy a prominent place in the Cape Flora, though the majority are terrestrial, and very few of them are generally cultivated. The present enumeration deals with 496 species, belonging to forty-seven genera. The tribes are very unequally distributed, Ophrydeæ coming first with thirty-two genera and 358 species, Vandeæ second with eight genera and 128 species, Epidendreæ third with three genera and six species, and Neottieæ last with four genera and four species. Eulophia is the largest genus, having seventy-two South African species, Disa following closely with sixty-nine, after excluding Lindley's genera Monadenia, Herschelia, Forficaria and Schizodium, which were included in Disa by Bolus, though here they are recognised as distinct. Satyrium has fifty-two species, Habenaria thirty-seven, Disperis thirty-six, and Holothrix twenty-four, while no fewer than fourteen genera are represented by a single species. Seventy new species are described and five genera, the latter being sections of large genera now considered distinct. As already remarked, most of the species are terrestrial, the exceptions being Angræcum, Listrostachys, Mystacidium, Polystachya, Ansellia, and Megaclinium, which together aggregate thirty-six species. Among the few species familiar in gardens may be mentioned the Peerless Disa grandiflora, the "Pride of Table Mountain," D. rosea, D. tripetaloides, Polystachya pubescens, Ansellia gigantea, Listrostachys arcuata, Mystacidium filicorne, Satyrium coriifolium and princeps, Stenoglottis longifolia and fimbriata, Cynorchis compacta, and Bartholina pectinata. A few others are occasionally met with in botanical collections, where they have a rather precarious existence owing to difficulties in their culture. Very few of the species extend into Tropical Africa, and a feature of their distribution is that a large number, including a few of the smaller genera, are limited to the south-western region. The work contains keys to the genera and species, full descriptions, references, and synonymy, with a detailed account of their geographical distribution. The arrangement adopted is that of Bentham and Hooker's *Genera Plantarum*.

PHAIUS TUBERCULOSUS.

THE annexed figure represents the terrestrial Phaius tuberculosus, Blume, which was originally described and figured by Thouars under the name of Limodorum tuberculosum (*Orch. Iles Afr.*, t. 31), and for which an epiphytic species, now known as P. simulans, Rolfe, did duty in gardens for so long. The mistake was detected when plants of both were introduced by M.

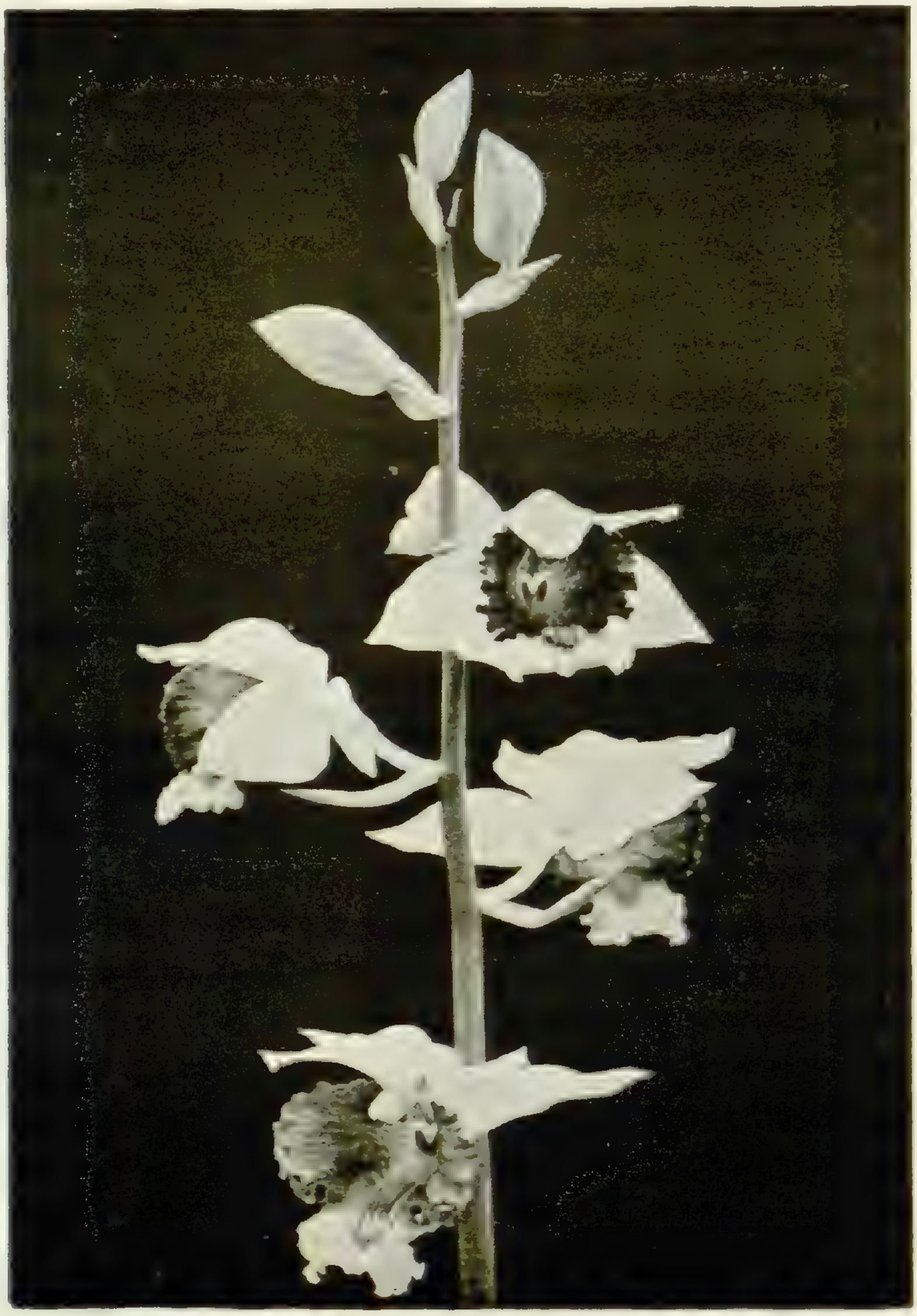

Fig. 29. PHAIUS TUBERCULOSUS.

Warpur about twelve years ago (*O.R.*, ix. pp. 41-44). Messrs. Charlesworth & Co. have again introduced plants of both species (see pp. 130, 137). According to M. Warpur, P. tuberculosus grows on slopes in the high forest, in half-dry humus, at an altitude of 1,200 to 1,500 feet, He recommends an intermediate temperature for it. P. simulans climbs on tree trunks at a lower elevation, and requires more heat and moisture.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

WITH the advent of May the weather begins to get warmer, and as the sun gains in power somewhat different cultural requirements are needed. Fire heat is usually not necessary, yet should exceptionally cold and damp weather prevail, it would be of advantage to have a little warmth in the pipes, otherwise it might be impossible to give any ventilation. One should endeavour to maintain the following average temperatures :—

Day, 58° to 65° Fahr.

Night, 55° to 60° Fahr.

Watering should be done with care, every plant being examined with a view to ascertaining whether it is in need of water. A great point to be remembered in regard to successful Orchid culture is to try and keep the plants always in an even state of moisture, not too damp nor too dry, but, as I remarked last month, the grower can alone determine how often this is necessary.

Damping down should be done liberally, a moisture-laden atmosphere being of absolute necessity. I find that on bright days it is usually needed at 9.30, midday, and about three p.m., but when the weather is dull and cloudy once at 11 a.m. is often sufficient.

Shading will now be needed as soon as the sun begins to shine directly upon the roof glass. Towards the middle of this month the roof glass should be painted with a weak solution of flour, lime, and water. Only apply a thin coating, and this will be found to break the force of the sun's rays without excluding at the same time any necessary light. Where, moreover, this shading is employed, the blind can be lowered later and raised earlier than would otherwise be the case.

Any imported Orchids which were purchased last month will now probably be emitting some roots, and, if this is the case, they may be potted up, as advised in my last month's article. For the first week after potting give only enough water to prevent shrivelling, but keep the surroundings very moist.

Lycaste Skinneri will now probably be over, and should repotting become a matter of necessity it should be done at the present time. Leave only three back bulbs to support the new lead and cut off all dead roots. Place to one side of the new pot so as to allow for future growth. For compost, use a mixture of loam, osmunda fibre, and moss. Be very careful not to have the base of the bulbs below the rim of the pot, otherwise decay will probably set in.

Cymbidiums, if requiring attention, should be taken in hand this month and treat as advised for Lycaste. I am strongly in favour of the under-

mentioned soil; good yellow fibrous loam, a little cow dung, osmunda fibre, and sphagnum moss. Use pots two sizes larger than the ones previously occupied by the plants, for Cymbidiums are strong growers, and do not like frequent root disturbance.

Any Orchids which are in need of fresh surface soil, without removing enough to disturb the roots below, may be top-dressed, using a large proportion of sphagnum moss.

SUGGESTED ADDITION.

ODONTOGLOSSUM PESCATOREI.—A very suitable species for an amateur's collection. It bears some likeness to the universally popular O. crispum, but the flowers are smaller, and are borne in great quantity on long branching spikes, frequently sixty or more blossoms being produced. The sepals and petals are white, and the disc of the lip yellow crested with a few purple spots. It continues long in perfection, and may be procured at a very reasonable figure. It was originally known as O. nobile. The variety Sanderæ is unique and beautiful.

ORCHIDS IN ANT'S NESTS.

A VERY interesting note on some Tobago Orchids which grow in ant's nests has been sent by Mr. W. E. Broadway, of the Botanic Station, Tobago. It is an extract from a letter by Mr. G. H. Sander, who is stationed at Trafalgar, in the central and cool part of the island. In sending a couple of plants of Epidendrum fulgens Mr. Sander remarks: "The species is getting scarce round here. It is usually found on the tops of very big trees growing in the bottoms of wet valleys, so that without clearings they are not easy to obtain. Also they are always on an ant's nest in the same manner as Coryanthes speciosa and Epidendrum xanthinum. I wonder why these three are almost invariably on ant's nests and the majority of the rest of Tobago Orchids usually free? On the tree where I obtained this E. fulgens there was a mass of Ornithidium confertum quite free from ants, also a big clump of Catasetum tridentatum, and yet E. fulgens was alive with them."

A similar fact was recorded by Im Thurn with respect to two Epidendrums which grow in the Eldorado Swamp, Mount Roraima. He remarks that they, "unlike any of the others, are invariably associated with ants, either because these creatures prefer to make their nests in the roots of the plants, or because the seeds of the plants find their most suitable nidus and germinate in the ant's nests." One of these species is called E. Schomburgkii, Lindl., but a comparison of the dried specimen shows it to belong to what Lindley called E. Schomburgkii var. confluens, which is identical with E. fulgens, Brongn. The other is called E. elongatum, Jacq., though a note explains that it is a species having the

facies of E. elongatum, but flowers of a peculiar shade of scarlet. A second note speaks of E. elongatum, "its stems varying in height from one to eight feet, its verbena-like clusters of flowers varying in colour of different plants, some pale yellow, some fawn colour, many pure rich pink, dark purple, and even mauve." This extreme variability is curious, and suggests that more than one species may have been confused together.

As to the reason why these plants find a congenial home in ant's nests a note by Rodway in the case of Oncidium altissimum is suggestive. After giving a graphic account of an experience in obtaining this plant (see *O.R.*, iii. p. 40), he remarks: "On the fork of a tree the Orchid had found a congenial habitat, where it grew and flourished for years, developing a great mass of roots to be occupied by the immense horde of ants, who, in return for house accommodation, undertook to keep off the enemies of the Orchid, of which the cockroach was one of the most inveterate. . . . . Is not this one of the reasons why the ants are so ready to take up their abode among the Orchid roots? Where its food was to be found the cockroach would certainly come, and the ant as certainly find its prey." The benefit may be mutual, and we would suggest that the roots of the Orchid may provide a suitable nesting place for the ants, as is certainly the case with Schomburgkia and Diacrium.

The history of Epidendrum fulgens has already been given (*O.R.*, v. p. 264), and it may be added that Mr. Sander's note supplies a new locality for the species, which was already known from the adjacent island of Trinidad, as well as from Guiana and Brazil. E. xanthinum was originally described from Brazil, and so far as I can find has not previously been recorded from the West Indies. R. A. R.

THE BASIS OF MENDELISM.—Unit-characters are not things in themselves distinct and separate from the organ concerned; each is a *quantitative variation* plus or minus in some one character possessed by the organism. Each quantitative condition of a character tends to persist from cell-generation to cell-generation. When two quantitatively unlike conditions of a character are brought together in a fertilised egg, they tend to keep their distinctness in subsequent cell-generations and to segregate into different gametes at reproduction, *i.e.*, they Mendelize. Only by figure of speech are we justified in recognising a *unit* difference between them. That difference might equally well be *half* as great as it is, or a *quarter* as great, or a thousandth part as great. A mono-hybrid ratio would result equally in each case upon crossing the two quantitatively different stages. It is the substantial integrity of a quantitative variation from cell-generation to cell-generation that constitutes the basis of Mendelism. All else is imaginary.—PROF. W. E. CASTLE.

CALENDAR OF OPERATIONS FOR MAY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

DURING the present month Orchids generally will be in growth, and every encouragement should be given them to build up and mature themselves as quickly as possible. The summer temperatures must now be maintained in all departments. When the outside conditions are mild and genial, the heat and light from the sun must be husbanded in every possible way that is conducive to the welfare of the plants, but during a cold spell allow a slight fall in temperature. The following figures are safe and reliable for the different departments during the next three months :—

Cool house: Night, 55° to 60°; day, 60° or as cool as possible.

Intermediate house: Night, 65° to 70°; day, 70° to 80°.

Warm houses: Night, 75°; day, 75° to 85°.

These figures are given as a guide, but local conditions vary, and every cultivator must use his own discretion according to circumstances. Undue fluctuations of temperature should be avoided. During extremely hot weather the thin-leaved Cool-house Orchids are easily injured by excessive heat or a dry, parched atmosphere.

ATMOSPHERIC MOISTURE may now be used most liberally, and with the increased amount of ventilation that will be necessary no harm is likely to accrue from this source, provided the temperatures are maintained. Avoid a hot and dry atmosphere, also a wet and cold one, as both are harmful for any length of time.

VENTILATION.—The ventilation of the houses must have every attention, especially in the southern districts where the sun has much power. Air should be admitted in every department on all favourable occasions. Ventilation during hot and dry weather needs some forethought, as if used in excess the humidity of the atmosphere is soon lost, and draughts may be easily caused which may do irreparable harm.

WATERING may be carried on as advised last month right through the growing season, but in no case should plants be kept in a saturated condition indefinitely, but the compost should be allowed to become dry between each application of water to the roots.

SHADING also must have attention, as the blinds should not be down when not required. On the other hand the sun must not be allowed to shine on the plants when there is a danger of the foliage suffering. These small matters are essential if the best results are to be attained.

CATTLEYAS, LÆLIAS, LÆLIOCATTLEYAS, and others of the summer-flowering section, which comprise many plants of complex parentage and great beauty, are now pushing up their flowers within the sheaths, and it is advisable that the plants should be thoroughly cleaned before the flowers

push out, as there is a danger of them getting damaged if left to a later period. When in bloom the plants may be moved to drier and slightly cooler quarters, which will be the means of the flowers lasting longer in perfection and be more accessible to those who object to the humidity and heat of the growing houses. The potting of the plants, as they go out of flower and begin to push roots at the base of the pseudobulbs, should have attention whenever it becomes necessary.

CYPRIPEDIUMS of the winter-flowering section which have not been repotted should be done at once if they require it, as, if left too late, they fail to produce flowers satisfactorily the following season. The plants this season appear to me to carry their flowers much later than usual, as at the time of writing many are even in full bloom. The summer-flowering section, such as C. Lawrenceanum, niveum, Godefroyæ, bellatulum, Curtisii, and their numerous hybrids will be better cleaned and placed in their flowering quarters, where no water from the syringe may reach them.

CYMBIDIUMS include some of the most easily-cultivated and stately Orchids. Amongst the best known and most useful are C. Lowianum and its variety concolor, C. eburneum, erythrostylum, giganteum, insigne, grandiflorum, Tracyanum, and numerous hybrids. They should not be disturbed at the roots, until really necessary, as the plants bloom more freely and produce finer flowers when the pots are well filled with roots. Those plants that have not sufficient room to develop the present season's growth should be repotted, also any in which the compost has become decomposed. In potting plants of this character it is often a difficult matter to know what to do with the roots, as with healthy specimens they are often one solid mass. Whenever possible it is best to disentangle them without breaking them, picking out as much as possible of the old decayed compost with a pointed stick. The pots should be well drained, and of a larger size than is general, and what would be considered a large shift in most cases is in this one not unusual. A similar compost to that used for the green-leaved Cypripediums, with slightly more loam fibre, will answer their requirement, and the plants may be potted moderately firmly. Extreme caution is necessary in the application of water to the newly-potted plants until the roots get fairly hold of the compost. The best time to repot is whenever the half-made pseudobulbs are about to produce new roots. These Cymbidiums grow best in a shady position in a cool Intermediate house, with plenty of fresh air.

ZYGOPETALUM with its allies, comprising Bollea, Pescatorea, Warscewiczella, Huntleya, Promenæa, Batemannia, and Kefersteinia, form an interesting little group. The majority do not resemble Zygopetalum in habit of growth, and, with the exception of Promenæa, possess no pseudobulbs. *Z.* Mackayi, the best known and the most generally grown, may be regarded as a typical example. These plants delight in a shady

position, with an abundance of moisture around them, and an average temperature of about 60°. These plants at the present time will be growing fast, and should any be in need of new rooting material they may have attention. Their surroundings should be kept moist, and the plants may be sprayed overhead two or three times a day on favourable occasions. Even weak sunshine must not be allowed to reach them. They will succeed in a mixture of fibre and moss, in equal portions, but the stronger growers may have a small portion of loam fibre added. The dwarf-growing Promenæas are best grown in small well-drained shallow pans, which may be suspended over a tank or in a shady cool part of the Odontoglossum house. The quaint-flowered Chondrorhyncha Chestertonii requires the same treatment as Zygopetalums, with which it is closely allied.

DENDROBIUMS.—Plants of D. thyrsiflorum, densiflorum, Farmeri, chrysotoxum, fimbriatum, and others of the racemose section will now be showing their flower buds, and should be afforded slightly more water at the roots and a slightly warmer temperature, which will assist the expansion and development of their flowers. Plants of D. formosum that are pushing forth new roots, and are in need of new rooting material, may also have attention. This plant revels in plenty of heat and light whilst in growth, with a long rest after flowering. D. infundibulum, Jamesianum, and other members of the Nigro-hirsute section succeed best grown in a cool intermediate temperature instead of a warm one. The compost advised last month for Dendrobiums will also answer the requirements of this section.

SOBRALIAS and other terrestrial Orchids that are showing their flower spikes will benefit by an occasional watering with weak liquid manure water, especially if at all pot-bound. When in this state weak manure water is beneficial to terrestial Orchids, but to epiphytic ones, in my opinion, it is most harmful.

ODONTOGLOSSUMS.—Such plants as O. grande, Insleayi, Williamsianum, and others of this section, when their growths are fairly started and before they push roots, should, if necessary, be repotted. I do not recommend the system of top-dressing as often recommended, for if the compost is decomposed on the top that at the bottom of the receptacle is in a worse condition. They require a slightly higher temperature than the Cool house. Plants of O. Rossii and its hybrids will also require attention as regards repotting as they pass out of flower and their young growths get nicely away. They thrive grown in shallow pans suspended in a cool Intermediate house, in a position where they do not receive a superabundance of light. O. triumphans and its numerous hybrids may also be repotted at this season if their growths are in the desired condition.

VANDAS.—The present is a good time to renew the rooting material of any of the autumn-flowering Vandas, such as V. cœrulea, Amesiana,

Kimballiana, and the natural hybrids from them. The whole of these plants will grow satisfactorily in clean picked sphagnum moss. Plants after being disturbed should be shaded until they get re-established, as if subjected to too much light they may lose their leaves.

CHYSIS.—Plants of C. bractescens, C. Limminghei, and others that have finished flowering and are in need of new material may be repotted. Those that were repotted last year, and need no disturbance now will require abundance of water at the root, being in full growth. The plants grow well in a similar compost to Cattleyas, in half pots, suspended in the lightest position in the Cattleya house. Small yellow thrip attack these plants persistently, and they should be frequently fumigated to destroy these pests. When established and in full growth the plants should receive copious supplies of water at the roots.

ONCIDIUMS of the Cyrtochilum section, include O. macranthum, serratum, lamelligerum, corynephorum and several others. These plants are of comparatively easy culture if afforded a cool intermediate temperature. They should receive all the light possible during the winter months, and be protected from strong sunshine during the sunny ones. The plants should not be allowed to produce flower spikes until they have become fairly strong specimens. Repotting may be carried out at any time when the young growths are producing new roots. A compost as advised for similar plants will answer their requirements.

GENERAL REMARKS.—The present month is perhaps looked forward to more than any other in the year, owing to the R.H.S. Show, when the Orchid grower sallies forth from the different parts of this and other countries to note the continual progress which is going on in our profession. Many are the re-unions made year by year at this Mecca of all Orchid lovers, and it is chiefly at these times that we miss those that have dropped out by the way. How short is the life of even the longest, and how little he can accomplish in the space of time given him, therefore whatever is attempted should be thorough, as only by this means can we hope to leave anything to posterity.

AUSTRALIAN ORCHIDS.

"A FEW notes on Australian Orchids would be acceptable to us at the Antipodes." Thus writes an Australian correspondent, and he will be glad to see a note from a compatriot at page 141.

Australian Orchids are not common in cultivation, with the single exception of the genus Dendrobium, which contributes several interesting species to our collections, and among them the beautiful D. Phalænopsis, which was originally described from Queensland specimens, though most of the plants now in cultivation are believed to have come from New Guinea

or the adjacent islands. Then we have D. bigibbum, D. superbiens, and D. Goldei, all having very attractive purple flowers. D. speciosum is a well-known white flowered species which makes an imposing display when well grown, and between this and the pretty little rose-coloured D. Kingianum there seems to be a curious set of natural hybrids whose history has already been given (*O.R.*, xvi. p. 88). D. undulatum is a very robust species bearing long pendulous racemes of bronzy flowers, while in D. Johannis the spikes are erect, and the flowers of a dusky blackish brown. Somewhat approaching the latter in habit but differing in colour, we have D. canaliculatum, which is sometimes met with, also the dwarfer D. gracilicaule. D. æmulum has short racemes of white flowers. D. tetragonum is a remarkable species, and rather rare in gardens, while

Fig. 30. DENDROBIUM LINGUIFORME.

D. Smilliæ is the single representative of the Pedilonum section, and has dense spikes of white flowers, tinged with rose, and the lip green. D. teretifolium is a very graceful plant, bearing long whip-like leaves and pendulous spikes of white flowers with very narrow segments, and when well grown is very effective. Lastly we may mention the remarkable little D. linguiforme (fig. 30), and D. cucumerinum (*Bot. Mag.*, t. 4019), in which the leaves have been well compared to little gherkins. Plants of this remarkable species are in the collection of Sir Jeremiah Colman, Bart., at Gatton Park.

Sarcochilus Fitzgeraldii and S. Hartmannii are both pretty little representatives of a rather large genus, whose members are not often met with in cultivation. Phaius grandifolius and Calanthe veratrifolia are two

well-known Orchids which extend their area to Australia. A few others are occasionally met with in botanical collections, including representatives of the remarkable Australasian group Diurideæ. which form such a large element of the Australian flora, and which are beautifully illustrated in Fitzgerald's work on *Australian Orchids*.

It may be added that Bentham enumerated about 228 species of Australian Orchids in the *Flora Australiensis*, belonging to forty-eight genera, the largest genus being Caladenia, the Spider Orchids, with twenty-seven species, Pterostylis and Dendrobium, twenty-four each, Prasophyllum, twenty-three, Thelymitra, sixteen, and Diuris, thirteen, but a number of others have since been described. About two-thirds of the species belong to Diuridæ, only a few of the twenty genera having outlying representatives in New Zealand, and the Malayan Archipelago. The other third of the species belong to twenty-eight genera which extend from Asia, but a good many of the species are only Australian. It would be very interesting to know if any of the native species are cultivated in Australian gardens.

Fitzgerald believed there were a few native hybrids, and he made some experiments in hybridising, but we do not know with what results.

ORCHIDS AT VENTIMIGLIA.

A VERY successful attempt is being made in the well-known gardens of La Mortola, situated between Mentone and Ventimiglia, to grow Orchids in the open air, by fastening them on to the bark of living trees and old tree stumps, and possibly a few notes taken during a recent visit may be of interest to readers of the *Orchid Review*.

It is obvious that, considering the climate of the Italian Riviera is not extremely warm, the best success is obtained from those Orchids requiring Cool house cultivation in this country. The collection comprises several Oncidiums, including brevifolium, crispum, dasytyle, Forbesii, incurvum, and maculatum, whilst a strong plant of the first-named was producing a branched panicle of over fifty flowers. Several nice healthy pieces of Odontoglossum crispum and O. triumphans, Cœlogyne cristata, and Dendrobium superbiens were also noted. But undoubtedly the Orchids which succeed best in this district are Lælia anceps and albida. Several plants of the former were pushing up their long slender flower spikes.

This magnificent garden was planted many years ago by the late Sir Thomas Hanbury, and is chiefly celebrated for its splendid collection of Cacti and Succulents. Mons. A. Berger, the able curator, is very sanguine as to the prospects of being able to possess a representative collection of Orchids, and as soon as it is seen that those already obtained can be successfully cultivated a greater number will be procured.

C. ALWYN HARRISON.

SCHOMBURGKIA WALLISII.

IN 1877 Reichenbach described a New Grenadan Orchid, from dried specimens collected by Gustav Wallis, under the name of Bletia (Schomburgkia) Wallisii (*Linnæa*, xli. p. 116), with the alternative name of Schomburgkia Wallisii, "pro hortis," but the species appears to have been lost sight of ever since. It was said to have ligulate, undulate sepals and petals, and a three-lobed lip, with obtuse side lobes and an oblong acute front lobe, with a broad depressed keel on the disc. The flowers were said to be of the size of S. marginata, and yellowish brown in the dried state. A Schomburgkia has now flowered at Kew which has the characters of the lost species. It was sent by M. Patin, from New Grenada, under the name of Cattleya Deckeri, but proves different. It bears a very general resemblance to the Venezuelan S. Lueddemannii Prill (*Bot. Mag.*, t. 8427), but the lip is different in structure and colour, having broad obtuse side lobes and a very acute front lobe, while the apex of all the lobes is brown in colour. The disc is very convex behind the yellow crest, but terminates in a sudden depression just above the base. The plant is also much like S. Lueddemannii in habit, having clavate pseudobulbs eight to ten inches long, and bearing two leaves from twelve to fifteen inches long. It is interesting to recognise the plant after so long an interval. R. A. R.

THE ROMANCE OF ORCHID HUNTING.—Mrs. G. B. Wilson, Philadelphia, writes :—" Regarding your article at page 45, I should like to confirm the remark: 'The writer does not believe that either one of the collectors mentioned told the stories as published,' &c., &c. In probably 90 per cent. of the newspaper and other articles concerning my collection the material was furnished by some one of my gardeners. The articles have appeared to me quite as ridiculous as they did to your contributor."

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 1st, when there was a fine display of Orchids, and the awards consisted of seven medals, five First-class Certificates, three Awards of Merit, and one Cultural Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, R. A. Rolfe, J. S. Moss, J. Wilson Potter, F. Sander, A. McBean, W. Waters Butler, F. M. Ogilvie, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, C. J. Lucas, S. W. Flory, W. Bolton, F. J. Hanbury, de Barri Crawshay, and F. Peeters, visitor.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a fine group, to which a Silver Flora Medal was awarded. It contained some good blotched seedling Odontoglossum crispum, hybrids of O. Edwardii, Oncidium concolor, Chondrorhyncha Chestertonii, Epidendrum Wallisii and E. Stamfordianum, Cattleya Trianæ, Cirrhopetalum appendiculatum and Mastersianum, Zygopetalum Perrenoudii, and some good Læliocattleyas.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Banksian Medal for a good group, including the pretty little Odontioda heatonensis, O. Patricia (Odontioda Charlesworthii × Odontoglossum Phœbe), white, with large red-brown blotches and much yellow on the lip, O. Bohnhoffiæ, Bradshawiæ, Vuylstekeæ and Goodsoniæ, Odontoglossum armainvillierense Dayanum, O. Vuylstekei, O. Dixoniæ (Edwardii × Wilckeanum), and others.

W. Waters Butler, Esq., Southfield, Edgbaston, sent Cattleya Tityus Southfield var., a very handsome form.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent Odontioda Bradshawiæ marginata, and a fine spike of the South African Lissochilus speciosus, with eight yellow flowers.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontoglossum Dirce (harvengtense × armainvillierense), very heavily blotched with dark purple.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent Cattleya Schrœderæ Davidson's var., a large blush white form.

John S. Moss, Esq., Wintershill Hall, Bishops Waltham (gr. Mr. Kench), showed Odontioda Bradshawiæ ardens, a very large scarlet form, bearing a splendid spike.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed the handsome Odontoglossum Ossulstonii Shrubbery var.

C. J. Phillips, Esq., The Glebe, Sevenoaks, sent the handsome Odontioda Royal Gem (Odontioda Vuylstekeæ × Odontoglossum armainvillierense), a pretty cream white form tinged with pink and very regularly spotted with red, and Odontoglossum Valeria Glebe var. (Edwardii × Vuylstekei), a dark claret-coloured flower tipped with rose.

Pantia Ralli, Esq., Ashtead (gr. Mr. Farnes), sent Odontioda Cooksoniæ Ralli's var., and a fine O. Charlesworthii with three flower spikes.

Col. J. Rutherford, M.P., Beardwood, Blackburn (gr. Mr. Lupton), showed a plant of the rare and handsome Cymbidium Parishii.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including the handsome Læliocattleya Dominiana Orchidhurst var., a pretty hybrid from L.-c. Doris and Cattleya Schrœderæ, having apricot yellow flowers and a crimson lip, Zygopetalum Armstrongiæ, Cypripedium

Rossetti, Dendrobium nobile virginale, D. Wardianum, a pretty yellow form of D. Wiganiæ (sigmatum × nobile virginale), Odontioda rosefieldiensis, and a very distinct hybrid from O. Vuylstekeæ × Cochlioda sanguinea, Odontoglossum Andersonianum, O. Rolfeæ × armainvillierense, O. polyxanthum × Rolfeæ, O. crispum Kinlesideanum, Brassocattleyas and Brassolælias (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including numerous good forms of Cattleya Schrœderæ, many plants of Renanthera Imschootiana, Scuticaria Hadwenii, Vanda cœrulescens, Odontonia St. Alban, some good Odontiodas, Megaclinium maximum, Zygopetalum Perrenoudii, Pholidota ventricosa, a plant of Cymbidium I'Ansonii, introduced from Annam, a pretty hybrid from Cypripedium glaucophyllum and C. Niobe Westonbirt var., &c. (Silver Flora Medal).

Mr. S. Flory, Tracy's Nursery, Twickenham, staged a good group, including fine examples of Dendrobium Wardianum, Cattleya Schrœderæ and var. alba, C. intermedia, Saccolabium ampullaceum, Lycaste Skinneri, Trichopilia suavis, Bulbophyllum pavimentatum, Pleurothallis Grobyi, P. tridentata, Restrepia elegans, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a good group, including some well-flowered Dendrobium Wardianum, aureum, and chessingtonense, Oncidium concolor, Cattleya intermedia alba, C. Schrœderæ, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including some good forms of Cattleya Schrœderæ and Mendelii, two plants of C. Lueddemanniana Stanleyi, Læliocattleya Gottoiana, Brassocattleya Maronii and Lycaste Tunstillii (Bronze Banksian Medal).

Messrs. J. & A. A. McBean, Cooksbridge, staged a small group, including some finely-grown Cattleya Schrœderæ, C. Brenda, Læliocattleya Ganymede var. Hermes, Miltonia Bleuana, a richly-coloured Odontioda Lambeauiana, some finely-blotched Odontoglossum crispum, and O. triumphosum (cirrhosum × triumphans).

Messrs. James Veitch & Sons, Chelsea, showed Læliocattleya Boylei Langley variety, a pretty blush white form, and Brassocatlælia Medina.

FIRST-CLASS CERTIFICATES.

BRASSOCATTLEYA HEATONENSIS VAR. CANARY (C. Hardyana × B. Digbyana).—A beautiful variety, having light yellow sepals and petals, and a paler lip with some purple markings at the base. The plant bore two spikes of three flowers each. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander).

CYMBIDIUM HUMBLOTII.—A stately Madagascar species, with arching leaves and an erect panicle five feet high, with six side branches and about 110 green and black flowers. Exhibited by Messrs. Charlesworth & Co.

Cypripedium Roundhead (Earl of Tankerville × nitens).—A handsome hybrid, with a nearly circular flower of great substance, having a greenish yellow dorsal sepal with large chocolate brown blotches and a

Fig. 31. Cypripedium Roundhead.

broad white margin, and the petals and lip yellowish tipped with brown Exhibited by Lt.-Col. Sir G. L. Holford (fig. 31, which is reproduced from a photograph kindly sent to us by the exhibitor).

LÆLIOCATTLEYA DOMINIANA SOUTHFIELD VAR. (L. purpurata × C. Dowiana aurea).—A remarkably fine form, having light purple sepals and petals, and a very broad intense claret purple lip. Exhibited by W. Waters Butler, Esq., Edgbaston.

ODONTOGLOSSUM EXIMIUM WARNHAM COURT VAR. (armainvillierense × crispum Luciani).—A handsome round flower, with remarkably broad sepals and petals, very heavily blotched with reddish purple. Exhibited by C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan).

AWARDS OF MERIT.

CATTLEYA INTERTEXTA JULIETTÆ (Mossiæ alba × Warneri alba).—A charming pure white variety, with a light yellow disc to the lip. Exhibited by M. Firmin Lambeau, Brussels.

ODONTIODA COOKSONIÆ RALLI'S VARIETY (C. Nœtzliana × O. armainvillierense).—A handsome form, bearing a spike of eighteen fine deep scarlet flowers with a blush white front to the lip. Exhibited by Pantia Ralli, Esq.

ODONTIODA KEIGHLEYENSIS ignifica (C. Nœtzliana × O. cirrhosum).—A fine form, with darker scarlet flowers than the original. Exhibited by Messrs. J. & A. A. McBean.

CULTURAL COMMENDATION.

CYMBIDIUM HUMBLOTII.—To Messrs. Charlesworth & Co., for the finely-grown plant mentioned under First-class Certificates.

At the meeting held on April 15th the awards consisted of seven medals, three First-class Certificates, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, W. Thompson, F. Sander, F. J. Hanbury, W. Cobb, F. M. Ogilvie, A. McBean, T. Armstrong, J. Charlesworth, W. H. Hatcher, J. E. Shill, H. G. Alexander, W. P. Bound, A. Dye, W. H. White, C. J. Lucas, S. W. Flory, W. Bolton, C. Cookson, J. S. Moss, de Barri Crawshay, Sir Jeremiah Colman, Bart., and Sir Harry J. Veitch.

E. H. Davidson, Esq., Twyford, gained a Silver Flora Medal for a choice group, including a handsome Læliocattleya Aphrodite, Odontoglossum armainvillierense xanthotes, Aurora, Nesta, Dora, a handsome O. crispum with a claret-coloured blotch on each segment, O. Andersonianum × amabile, a few good Miltonias, and several brilliant Odontiodas.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a pretty group, including specimens of Cattleya intermedia alba, Masdevallia ignea, Odontoglossum crispum xanthotes, and several other good Odontoglossums and Odontiodas (Silver Banksian Medal).

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent a noble specimen of Cattleya Schrœderæ the Baron, and Odontioda Bradshawiæ Holford's var., a large and brilliant scarlet form.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Odontioda Bradshawiæ Hestia, a very fine scarlet form, with the margin of the segments rosy lilac, and the apex of the lip cream white, and O. Evadne, a very pretty hybrid, having a salmon red zone round the base of the segments, and the rest white, tinged and dotted with rose.

Wm. Thompson, Esq., Walton Grange, Stone (gr. Mr. Howes), sent Odontioda William Thompson, a well-coloured flower, the finely-blotched Odontoglossum Ilene and Princess Mary, all of unknown parentage, and O. crispum J. Howes, a good blotched form.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent Odontioda Bradshawiæ Cobb's var.

G. Evans, Esq., Shenstone (gr. Mr. Povey), sent a well-flowered blush-white Brassocattleya.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent Cattleya Robert de Wavrin Fowler's var., a pretty rose-coloured form of good shape.

C. Alwyn Harrison, Esq., Oneglia, Italy, exhibited well-flowered plants of Dendrobium Wardianum, D. nobile, D. crassinode, and its richly-coloured variety Barberianum.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent the pretty Brassocatlælia Triune, a yellowish white flower, tinged with lilac, and the lip suffused with purple.

Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), sent Læliocattleya Dominiana Ralli's var., a rosy form with dark purple-crimson lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including Miltonioda Ajax, Epilælia macro-cinnabar, Masdevallia Troglodytes, Cypripedium concolor × exul, of intermediate character, some brilliant Læliocattleyas, Odontiodas, Oncidium concolor, Odonto-glossum Scottianum, and others (Silver Flora Medal).

Mr. Sidney Flory, Orchid Nursery, Twickenham, staged a fine group of Cattleya Schrœderæ, Odontoglossums, Læliocattleyas, Odontioda Charles-worthii, Chysis bractescens, Saccolabium ampullaceum, Acanthophippium bicolor, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group of Cattleyas, Læliocattleyas, Odontiodas, Odontoglossums, Renanthera Imschootiana, Brassocattleya langleyensis, &c. (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a pretty little group, including some well-flowered Trichopilia Backhouseana, Miltonia Bleuana, Cymbidium Veitchii, Odontoglossums, &c. (Silver Banksian Medal).

Mr. C. F. Waters, Balcombe, staged a good group of Lycaste Skinneri, showing much variation, with Cattleya Mossiæ, C. Mendelii, and a few Odontoglossums (Bronze Banksian Medal).

Messrs. J. & A. A. McBean, Cooksbridge, sent the pretty Læliocattleya Trimyra, Miltonia Bleuana and M. vexillaria memoria G. D. Owen, and two very richly-coloured forms of Odontioda Vuylstekeæ.

FIRST-CLASS CERTIFICATES.

BRASSOCATLÆLIA KING EMPEROR (L.-c. callistoglossa × B.-c. Veitchii).—A remarkably fine hybrid, eight inches across, the sepals and petals white tinged with rose, and the lip deep mauve purple with paler margin, and a yellow disc with some purple at the base. Exhibited by W. R. Lee, Esq.

LÆLIOCATTLEYA LUMINOSA HOLFORD'S VAR. (L. tenebrosa Walton Grange var. × C. Dowiana aurea).—A superb form, with the sepals and petals deep yellow, and the lip uniformly deep purple. Exhibited by Lt.-Col. Sir G. L. Holford.

ODONTOGLOSSUM PESCATOREI LADY HOLFORD.—A large and very beautiful variety, with flowers 3½ inches across, the sepals tinged with lilac, the petals with an occasional purple spot, and the lip white with the usual markings on the crest. Exhibited by Lt.-Col. Sir G. L. Holford.

AWARDS OF MERIT.

MAXILLARIA FLETCHERIANA.—A fine Peruvian species allied to M. Hubschii, and having short and broad white segments, with narrow lighter purple lines, and the lip with some purple markings, and a yellow disc. Exhibited by Messrs. Sander and Sons.

ODONTOGLOSSUM MRS. THOMPSON (parentage unknown).—A beautiful hybrid, having the flowers deeply blotched with violet on a white ground, and the front of the lip and margin of the fringed petals white. Exhibited by Wm. Thompson, Esq.

CULTURAL COMMENDATION.

ODONTOGLOSSUM DIXONIÆ (Edwardii × luteopurpureum).—To Mr. Wm. Balmforth, gr. to F. M. Ogilvie, Esq., The Shrubbery, Oxford, for a finely-grown plant, having a branched spike over five feet long. It was exhibited as Odontioda Devossiana, under which name it was purchased.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held on March 20th, the members of Committe present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, Dr. Hartley, F. A. Hindley, A. J. Keeling, D. McLeod, C. Parker, H. Thorp, Z. A. Ward, A. Warburton, and H. Arthur (Secretary).

A Gold Medal was awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for an excellent group of Odontoglossums, Miltonias, Brassia brachiata, and others.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a nice mixed group of Cattleyas, Dendrobiums, Odontoglossums, Odontioda Charlesworthii, Cymbidium insigne, and Renanthera Imschootiana.

A Large Silver Medal was awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a fine group of Odontoglossum crispum, Pescatorei and hybrids, with Læliocattleya Dominiana and a few Cattleyas and Cypripediums.

A Silver Medal was awarded to F. A. Hindley, Esq., Bradford, for a good miscellaneous group of Cypripediums, Dendrobium nobile virginale, Dendrochilum glumaceum, Cœlogyne Massangeana, and Lycaste cruenta.

A Bronze Medal was awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a small group of Cypripediums.

A Special Vote of Thanks was given to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), for a group of Dendrobium nobile and hybrids, with Cypripediums and Lycastes in variety, some of the latter carrying nine and ten flowers.

Other interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Mr. J. Birchenall, Alderley Edge, and Mr. W. Shackleton, Great Horton.

FIRST-CLASS CERTIFICATES.

Odontioda daltonense (O. Phœbe × C. Nœtzliana); a good flower, three inches across, of even colour: from J. H. Craven, Esq., Keighley (gr. Mr. Corney).

Odontoglossum Rossii majus Ward's var.; a large well-set rosy flower, 3¼ inches across; from Z. A. Ward, Esq.

Oncidioda Cooksoniæ Ashland's var. (Oncidium macranthum × C. Nœtzliana); flowers of the macranthum shape, bronzy scarlet in colour; from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum tripudians Ward's var.: O. crispum Snowball and Miltonia vexillaria Cringlewood var.; all from Z. A. Ward, Esq.

Odontoglossum triumphans Hesperidas, Cattleya Trianæ Ida and Odontoglossum illustrissimum; from R. Ashworth, Esq.

At the meeting held on April 3rd the members of Committee present were: Messrs. Z. A. Ward (in the Chair), J. Cypher, J. Evans, A. Hanmer, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, Wm. Thompson, H. Thorp, A. Warburton, and H. Arthur (Secretary).

A Gold Medal was awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for an excellent group, a special feature being the Odonto glossums, species and hybrids, and a nice batch of Oncidium concolor.

Silver-gilt Medals were awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), and Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for very fine groups.

A large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a fine miscellaneous group.

Silver Medals were awarded to W. R. Lee, Esq., Heywood (gr. Mr. Branch), for some well-flowered plants of Dendrobium Wardianum; to S. Gratrix, Esq., for the handsome Odontoglossum crispum Samuel Gratrix, and to Messrs. J. Cypher & Sons, Cheltenham, for a good mixed group.

Bronze Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a group of Cypripediums, and to Messrs. A. J. Keeling & Sons, Bradford, for a mixed group.

Interesting exhibits were staged by H. Arthur, Esq., Blackburn; Mr. W. Shackleton, Great Horton, and Messrs. Armstrong & Brown, Tunbridge Wells, the latter including a promising hybrid from Dendrobium chessingtonense × Ainsworthii.

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium Ilene and O. Princess Mary, the latter of unknown parentage, and of almost solid colour; from Wm. Thompson, Esq.

Brassocattleya Cliftonii magnifica, a magnificent flower of almost perfect shape, with brilliantly-coloured lip; from W. R. Lee, Esq.

Odontoglossum Harlequin West Point var., a flower with brilliantly-coloured markings; from S. Gratrix, Esq.

Odontoglossum amabile Fairlight, one of the largest flowers ever placed before the Society, fully four inches across, with broad flat lip; from Col. J. Rutherford, M.P.

AWARDS OF MERIT.

Cattleya Gratrixiæ, Lycaste Fairy Footsteps, Brassocattleya Maroniæ West Point var., and Odontoglossum Royal Purple; all from S. Gratrix, Esq,

Odontoglossum Walton Gem, O. eximium Violetta, O. Wm. Stevens. O. amabile His Majesty, and O. a. Dorothy; all from Wm. Thompson, Esq.

Læliocattleya Lady Blanche and Odontoglossum Yellow Prince; both from Col. J. Rutherford, M.P.

Odontoglossum Purple Queen; from Z. A. Ward, Esq.

Odontoglossum Thompsonianum Vine House var.; from A. Warburton, Esq., Haslingden.

GHENT QUINQUENNIAL.

The seventeenth Quinquennial Horticultural Exhibition brought together a magnificent display of Orchids, over half the eighty-nine classes being filled, though in a good many cases there was only a single

exhibit. Many of the groups were very rich and varied, but some of the details must be left over until our next issue. Judging took place on April 25th, the Orchid Jury being grouped in three sections, as follows :—

1. Messrs. Baron van Roetzelaer (President), Otto Beyrodt (Secretary), A. A. Peeters, James O'Brien, Ch. Maron, and F. M. Ogilvie.

2. Messrs. le Chevalier T. J. Quarles van Ufford (President), R. Allen Rolfe (Secretary), J. S. Moss, Oscar Fanyau, Ch. Dietrich, H. G. Alexander, H. J. Pitt, Dr. Capart, and F. Peeters.

3. Messrs. Firmin Lambeau (President), Stuart Low (Secretary), Em. Duchesne, Em. Joly, F. H. C. Sander, Gurney Wilson, R. le Moinier, and G. Vincke.

The Show was opened on April 26th, in fine weather, and an official visit was paid by their Majesties the King and Queen of the Belgians in the afternoon, in the presence of a large and brilliant gathering.

The Orchid awards were as follows :—

For the best and most varied collection of exotic Orchids (Amateurs), the large Gold Medal of special design, offered by His Majesty the King, was won by M. Firmin Lambeau, Brussels, by acclamation and with felicitations of the Jury.

In a similar class for Nurserymen, the Œuvre d'Art, given by M. F. Lambeau, President of the Cercle des Orchidophiles belges, was won by M. Th. Pauwels, Meirelbeke.

For the best and most varied 100 exotic Orchids (Amateurs), the Œuvre d'Art, value 200 francs, offered by M. L. Tillier, Paris, was won by M. Charles Dietrich, Anderghem.

In the same class for Nurserymen a similar prize was won by Messrs. Charlesworth & Co., Haywards Heath, with felicitations of the Jury.

For the best and most varied 50 Orchids (Amateurs), the Œuvre d'Art, value 150 francs, was won by M. Joseph Hemptinne, St.-Denis-Westrem.

In a similar class for Nurserymen, M. Em. Praet was first, MM. A. and G. Janssens, Merxem, second, and M. Rene Beheils Van Poucke, St. Nicolas, third.

For the best and most varied 30 Orchids, the Gold Medal, value 100 francs, was won by M. Th. Pauwels, M. Emile Praet being second.

For a new hybrid (excluding Cattleya, Lælia, and Cypripedium), the Silver-gilt Medal was won by M. Firmin Lambeau, with C. Lambeauianum.

For a new bigeneric hybrid, the Silver-gilt Medal was won by M. F. Lambeau, with Brassocattleya Princesse Elisabeth var. M. Lambeau.

For the best collection of Orchids from Colombia, Venezuela, Peru, and Ecuador, the Gold Medal, value fifty francs, was won by M. Maurice Verdonck, Gentbrugge.

For the finest collection of Indian Orchids the Gold Medal was won by M. M. Verdonck, M. Emile Praet being second.

For a collection of 15 specimen Cypripediums (Paphiopedium) and Selenipediums, the Silver-gilt Medal was won by Madame A. de Schryver-Block, Gentbrugge.

For a collection of 12 well-flowered Dendrobiums, the Silver-gilt Medal was won by M. M. Verdonck.

For a collection of 25 well-flowered Dendrobiums, the Gold Medal, value fifty francs, was won by M. Maurice Verdonck.

For the best collection of 20 Læliocattleyas (Amateurs), the Gold Medal, value fifty francs, was won by M. M. Henri Vacherot et Leconfle, Boissy-St.-Leger, France.

For the best Lælia or Læliocattleya hybrid, M. Firmin Lambeau won the Silver-gilt Medal, by acclamation, with Læliocattleya Firminii var. Ville de Gand, M.M. Henri Vacherot and Leconfle being second.

For the finest Cattleya hybrid not yet in commerce, M. F. Lambeau won the Silver-gilt Medal, by acclamation, with Læliocattleya Roi Albert (L.-c. Martinetii × C. Warscewiczii), a very large and richly-coloured hybrid.

For the best and most varied lot of 50 plants of Odontoglossum crispum (Amateurs), the Gold Medal, value 100 francs, was won by M. Joseph Hemptinne, with felicitations.

In a similar class for Nurserymen, the Gold Medal was won by M. M. Verdonck.

For the best and most complete collection of Odontoglossums, species varieties and hybrids, the Gold Medal, value 150 francs, was won by M. Ch. Maillard, St. André, Lille, France.

For a collection of 12 Odontoglossums obtained from seed, the Gold Medal, value fifty francs, was won by M. Leon Hye de Crom, Gand.

For the best Odontoglossum crispum obtained from seed the Silver-gilt Medal was won by M. F. Lambeau, with O. c. Reine Elisabeth.

For the best Odontoglossum hybrid, the Gold Medal, value fifty francs, was won by M. F. Lambeau, by acclamation and with felicitations, with O. Ville de Gand.

For the best lot of Phalænopsis, the Gold Medal, value fifty francs, was won by M. Th. Pauwels, Meirelbeke, M. L. Hoornaert, St. Nicolas, being second.

For the best and most varied lot of 12 Vandas, Aërides, Angræcums, and Saccolabiums, the Silver-gilt Medal was won by M. Gust. Vincke-Dujardin, Bruges, with a group of Vanda tricolor and suavis.

For the best and most varied lot of Oncidiums, the Gold Medal, value fifty francs, was won MM. Jean Van de Putte & Cie., Ledeberg.

For the most varied lot of 50 Orchids, used for cut flowers (each variety to be represented by 10 examples), the Gold Medal, value 100 francs, was won by M. M. Verdonck, MM. Jean Van de Putte & Cie., Ledeberg, being second.

For the most beautiful Aërides M. Th. Pauwels won the Silver-gilt Medal with A. Houlletianum.

For the best Cattleya, the Silver-gilt Medal was won by M. Firmin Lambeau, with C. intermedia alba × C. Schrœderæ alba, bearing three racemes of white flowers.

For the best Cœlogyne the Silver-gilt Medal was won by M. Firmin Lambeau, M. Th. Pauwels being second, both staging C. pandurata.

For the best Cymbidium the Silver-gilt Medal was won by M. Firmin Lambeau, with C. Humblotii, M. Jos. de Hemptinne being second with an immense specimen of C. Lowianum.

For the best Cymbidium hybrid the Silver-gilt Medal was won by M. Th. Pauwels, Meirelbeke, with C. Pauwelsii var. André.

For the best Cypripedium, the Silver-gilt Medal was won by M. Th. Pauwels, Meirelbeke, with C. Alcibiades var. Roi Albert.

For the best Dendrobium, the Silver-gilt Medal was won by M. M. Verdonck, with D. thyrsiflorum bearing twelve racemes, Sir Jeremiah Colman being second with D. Lady Colman

For the best Epidendrum the Silver-gilt Medal was won by M. Th. Pauwels, Meirelbeke, with Epidendrum radicans.

For the best Lycaste the Silver-gilt Medal was won by M. Th. Pauwels, with L. Skinneri alba, MM. Jean Van de Putte & Cie., being second.

For the best Masdevallia the Silver-gilt Medal was won by M. Th. Pauwels, Meirelbeke, with a fine specimen of M. Pourbaixii, M. Jos. de Hemptinne being second with M. ephippium.

For the best plant of Odontoglossum crispum a Silver Medal of the First-class was won by Sir Jeremiah Colman, Bart., with a charming rosy variety.

For the best Odontoglossum other than O. crispum, the Silver-gilt Medal was won by M. Firmin Lambeau with O. luteopurpureum.

For the best Oncidium the Silver-gilt Medal was won by MM. Jean Van de Putte & Cie, Ledeberg, with a very fine O. Cavendishianum.

For the best Odontioda the Silver-gilt Medal was won by M. Firmin Lambeau with felicitations, with the magnificent O. Coronation, Sir Jeremiah Colman being second with O. Bradshawiæ.

For the best Phalænopsis the Silver-gilt Medal was won by M. Firmin Lambeau with P. amabilis, M. Hoornaert being second.

For the finest Phaius, a Silver Medal of the First-class was won by M. Th. Pauwels, with P. Norman.

(To be concluded.)

ORCHIDS IN SEASON.

FLOWERS of two very diverse and pretty seedlings from Odontoglossum polyxanthum × Rolfeæ are sent from the collection of E. H. Davidson, Esq., Twyford. One has pale yellow flowers, with very large red-brown blotches on the sepals, an occasional small spot on the petals, and a rather small lip with a large red-brown blotch, while the other is more yellow, with darker brown spots on all the segments, and the lip very large, rounded and slightly concave.

ODONTIODA ASPASIA.—A very distinct hybrid raised by Messrs. Armstrong & Brown, Tunbridge Wells, from Odontioda Vuylstekeæ × Cochlioda sanguinea. It has rather broad whitish sepals and petals, with large rose-purple blotches, and a narrow white lip with a large rosy blotch at the apex, and a few small spots round the whitish toothed crest.

ORCHID NOTES AND NEWS.

THE next meeting of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Wednesday (not Tuesday), May 14th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting is the Great Spring Show, to be held in the Royal Hospital Gardens, Chelsea, on Tuesday, Wednesday, and Thursday, May 21st, 22nd, and 23rd. Class 1 is devoted to Orchids, and Silver Cups and Medals will be awarded according to merit. The Orchid Committee will meet in the Committee Tent at 10.30 a.m. Single plants for Certificate may be entered up to May 15th.

A meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on May 1st, on which day the Annual Meeting will also be held at 2.30 p.m. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at meetings of the Committee are taken from the official report (continued from page 103) :—

February 4th :—

LÆLIA LUNDII (Rchb. f. & Warm).—Mr. R. A. Rolfe exhibited, on behalf of Messrs. Sander & Sons, a plant of this dwarf Brazilian species, remarking that it is allied to L. Regnellii, but is easily separated by its habit of flowering on the undeveloped growth, a character which it shares with Cattleya Walkeriana. The leaves are narrow and fleshy, and the flowers solitary, pale lilac with a veined blotch on the front lobe of the lip. It is quite unlike any other Lælia in cultivation. Its history is given in the *Orchid Review* (xviii. p. 62).

ONCIDIODA COOKSONIÆ.—The Orchid Committee referred the plant Oncidioda × Cooksoniæ to this Committee. It had been exhibited by Messrs. Charlesworth. The cross is rather a curious one between Cochlioda Nœtzliana ♀ and Oncidium macranthum ♂, and the hybrid has something of the long raceme of the pollen parent, while the flowers are larger than the seed parent and somewhat different in colour. It was first raised by Mr. Cookson. A Botanical Certificate was unanimously recommended to the plant.

March 4th :—

ODONTOGLOSSUM SATURNE.—Mons. H. Graire, of Amiens, showed this curious hybrid between O. nebulosum and O. Harryano-crispum. It closely resembles O. nebulosum in the form of the flowers, which are white, closely spotted with light brown and rose.

ODONTONIA CYBELE.—Messrs. Charlesworth & Co. showed this cross between Odontoglossum cirrhosum and Miltonia candida grandiflora. Mr. O'Brien showed illustrations of both the parents, and called attention to the fact that the tabular labellum of Miltonia candida did not appear in the slightest degree, the broadly ovate-spathulate labellum of the hybrid being perfectly flat. The colouring of the petals and sepals (broad bands of brown) were from the Miltonia, but the apiculate reflexed tips of the segments were as in Odontoglossum cirrhosum. The dark red lines characteristic of cirrhosum also appeared at the base of the labellum. A Certificate of Appreciation was awarded to Messrs. Charlesworth.

VARIATION IN SEEDLINGS.—Mr. G. Wilson showed flowers of two Orchid hybrids from the same seed pod. They were totally different in colour, one being of a brick red and the other white with a few red spots.

April 15th :

ODONTIODA PATRICIA.—Mr. R. A. Rolfe exhibited paintings and flowers from five seedlings obtained by Messrs. Charlesworth & Co. from Odontioda Charlesworthii (Cochlioda Nœtzliana × Odontoglossum Harryanum) crossed by Odontoglossum Phœbe (O. cirrhosum × O. crispum), and showing a remarkable range of colour variation from the same capsule. Two were of a peculiar shade of dark claret red, and another brilliant orange brown, these being self-coloured except for a little yellow on the lip. A fourth was yellow with large transverse red blotches, and a fifth claret purple with a darker mottling. The differences in shape were not great except in the lip, the fourth being most like the Odontioda parent and the others more deltoid, as in the Odontoglossum. Flowers of both parents were also shown.

EPIDENDRUM KEWENSE.—Mr. Rolfe also showed a series of paintings of E. kewense with its parents and offspring. The bright yellow E. xanthinum crossed with the deep purple E. evectum gave the salmon-

coloured E. kewense. The latter, re-crossed with the original purple species gave purple hybrids with a yellow crest (not a purple crest as in E. evectum), but re-crossed with the yellow species gave flowers of a reddish salmon colour, one, however, being more orange-coloured. When E. kewense was self-fertilised the offspring showed a gradation between the deep yellow of E. xanthinum through various shades of salmon to cerise and light rosy purple. The two extremes were primrose yellow (much lighter than E. xanthinum), and clear purple with a white crest touched with yellow in the centre. It was explained that primary hybrids are fairly uniform in character because the reproductive cells (pollen and embryos) of the parent species which unite to form them are uniform, but a hybrid, being a mosaic and combining two distinct ancestries, does not form reproductive cells of uniform character. Incompatability comes into play, and ancestral characters that do not blend are represented in these cells in varying proportions, thus giving rise to that marvellous diversity often seen among secondary hybrids. A series of quantitative differences was apparent in the flowers shown, the colour being represented in very varying proportions. Characters or qualities are adaptations, and of varying degrees of antiquity, and their stability, acquired through a long series of generations, illustrates what may be termed the persistence of specific character in organisms.

ORCHID PORTRAITS.

CATTLEYA A. DIMMOCK.—*Horticulture*, 1913, p. 513, with fig.

CŒLOGYNE PANDURATA.—*Horticulture*, 1913, p. 501, with fig.

CYMBIDIUM LOWIANUM (a specimen).—*Gard. Mag.*, 1913, p. 247, with fig.

CYPRIPEDIUM ROUNDHEAD.—*Gard. Chron.*, 1913, i. p. 230, fig. 101.

ODONTOGLOSSUM EXIMIUM WARNHAM COURT VAR.—*Gard. Mag.*, 1913, p. 235, with fig.; *Gard. Chron.*, 1913, i. p. 246, fig. 107.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

H.G.—Læliocattleya Cappei (L. cinnabarina × C. Warscewiczii).

C.F.K.—We do not find a record of this cross. A note is held over.

H.T.P.—Many thanks. Next month.

Several notes and articles are unavoidably postponed through pressure on our space.

We have received from Messrs. Sander & Sons, St. Albans, an interleaved copy of their *List of Orchid Hybrids*, with a pamphlet list of additions for 1912. The arrangement is the same as in the earlier edition.

CATALOGUE RECEIVED.—We have received the Illustrated priced Catalogue of Orchids of Messrs. J. & A. McBean, Cooksbridge, containing a fine selection of species and hybrids, with prices. There is a coloured plate of the handsome Læliocattleva Helius, with photographic representations and drawings of several handsome hybrids, and views in the establishment.

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THE R.H.S. CHELSEA SHOW.

THE Spring Show of the R.H.S., so long known as the Temple Show from its association with the Temple Gardens, and which was suspended last year on account of the Royal International Horticultural Exhibition, was held in the grounds of the Royal Hospital, Chelsea, on May 20th, 21st, and 22nd, and was a great success. The weather was fine throughout, and the area available being about trebled not only permitted a great extension of the exhibits, but also gave increased comfort to visitors, who were present in large numbers on each of the three days. On the opening day the Show was visited by Her Majesty Queen Alexandra, Princess Victoria, and the Duchess of Fife, who were evidently delighted with the magnificent display.

With the Orchids we are alone concerned, and some idea of their extent and quality may be formed from the awards, which numbered three Gold and four other Medals, eight Silver Cups, eight First-class Certificates, thirteen Awards of Merit, and four Cultural Commendations.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), staged a magnificent group in a space of about 200 square feet, to which a Gold Medal was awarded. The plants were splendidly grown and flowered, and included some beautiful examples of Oncidium Marshallianum, a fine series of Cattleya Mossiæ varieties, aggregating about 200 flowers, a fine specimen of C. Skinneri, several good C. Dusseldorfii Undine, with C. Mendelii, Schrœderæ, intermedia alba, and others, fine examples of Læliocattleya Fascinator, Britannia, Glaucus, luminosa, Goldcrest, callistoglossa, Hyeana, Ophir, Ballii, and others, many fine Miltonia vexillaria, Phalænopsis amabilis, and Renanthera Imschootiana, Brassavola Digbyana, with a beautiful series of its hybrids, including Brassocattleya Euterpe and the fine Brassocatlælia Veitchii, Sophrocatlælia Marathon, Lycaste Imschootiana, Cymbidium Alexanderi and tigrinum, and a fine series of Odontiodas and Odontoglossums, among the latter being O. Acme (sceptrum × Rolfeæ), most resembling the former. The group was beautifully arranged with palms and ferns.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a brilliant group, to which a Silver Cup was awarded. It contained some fine Miltonia vexillaria, a number of brilliant Odontiodas, including O. Bradshawiæ with three immense panicles, the fine varieties Lady Colman and Gatton Queen, both bright scarlet forms, O. Vuylstekeæ with two large panicles, some beautiful examples of Oncidium pulchellum and macranthum, Zygopetalum rostratum, Brassodiacrium Colmanii, Dendrobium Victoria-Regina, Physosiphon Loddigesii, a lot of Cœlogyne Parishii, Saccolabium ampullaceum, some brilliant Cattleya Schrœderæ, Skinneri, and Murrayi, Stelis parvula, and a brilliant series of Odontoglossums, including many fine O. Thompsonianum, one having a clear white ground, O. Queen of Gatton, O. crispum solum and many others.

E. H. Davidson, Esq., Orchid Dene, Twyford, staged a choice group, including some fine forms of Læliocattleya Aphrodite, Phalænopsis amabilis, a blush white Cattleya Mendelii, and others, Odontoglossum crispum xanthotes, O. c. Luciani and other blotched forms, Odontiodas, &c., with Trichopilia Hennisiana in front (R.H.S. Standard Cup).

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), sent Cattleya Lueddemanniana Schrœderiana, white, with some purple markings on the lip, and Miltonia Bleuana Hessle var., with two spikes.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent the fine Cymbidium woodhamsianum Fowler's var., with two racemes.

M. H. Graire, St. Fuscien, sent Odontioda Charlesworthii St. Fuscien, with a fine spike of twenty flowers.

M. Jules Hye de Crom, Ghent (gr. M. Coen), sent a fine example of Miltonia Hyeana, bearing large white flowers tinged with rose.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group in a space of 200 square feet, to which a Gold Medal was awarded. The centre contained many brilliant varieties of Læliocattleya Fascinator, L.-c. Dominiana, Sylvia, Golden Glory, Ulysses var. delicata and others, while on either side was a most brilliant assemblage of Odontoglossums and Odontiodas, and at either end fine specimens of Miltonia vexillaria Empress Augusta Victoria and some seedlings from it. We noted also M. Roezlii, good specimens of Cymbidium Humblotii and Pauwelsii, Chysis aurea, Odontonia Lairesseæ, some good Trichopilia Backhouseana, Calanthe veratifolia, Phaius Wallichii, Cœlogyne pandurata, Oncidium pulchellum, Epidendrum vitellinum, a well-flowered Masdevallia Courtauldiana, Cypripedium bellatulum album and Queen of Spain, Vanda Charlesworthii and teres, some very fine Cattleyas and Brassocattleyas, Odontioda Chantecleer, Patricia, Queen Mary, Enchantress, Diana, and Charlesworthii in numerous examples, with a brilliant series of Odontoglossums, noteworthy among them being the handsome O Empress of

India, forms of O. crispum, eximium, and amabile, with O. Phœbe, Harryanum, Aquitania, the yellow O. luteopurpureum Vuylstekeanum, and O. armainvillierense xanthotes.

Messrs. Sander & Sons, St. Albans, also received a Gold Medal for a very rich group, in which some of the showy things were massed in front of a very high and effective background, while the centre and side elevations were arranged in pyramidal fashion, with intervening dells. Cattleyas and Læliocattleyas formed a brilliant assemblage, with good forms of Cymbidium Pauwelsii, Schrœderi, and Gottianum, Phalænopsis amabilis, Brassocattleya mirabilis (C. Mendelii × B.-c. Leemanniæ), many fine Miltonia vexillaria and Bleuana, Odontonia St. Alban, O. Roger Sander, and O. Lairesseæ solum (M. Warscewiczii × O. crispum solum), with a very dark lip, a very fine Cattleya Suzanne Hye de Crom, Maxillaria Fletcheri, Lycaste peruviana, Scuticaria Hadwenii, Cœlogyne integerrima, Anguloa Clowesii, Bollea Lalindei, Aërides Houlletianum, Brassavola fragrans, Masdevallia Estradæ, Saccolabium gemmatum, Dendrobium Leeanum ampliatum, and many other rare and botanical species, with a brilliant series of Odontiodas and Odontoglossums.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Cup for a brilliant group of 200 square feet, which was well carried up behind, and undulate in front. At the back two fine examples of Cœlogyne Dayana stood well up on pedestals, with Cymbidium Lowianum, some fine Phalænopsis amabilis and Lælia purpurata, many Læliocattleya Fascinator, Aphrodite, and Hyeana, Dendrobium chessingtonense, some fine Brassocattleyas, Cœlogyne pandurata, a well-flowered Cattleya Skinneri alba, Sophronitis grandiflora, some fine Miltonia Bleuana, St. Andre and vexillaria, the latter including the handsome var. memoria G. D. Owen, Bulbophyllum Ericssonii, Pescatorea cerina, Maxillaria tenuifolia, Cypripedium Faire-Maud, C. villosum × bellatulum, and a lot of fine Odontoglossums and Odontiodas.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Cup for a very fine group, containing many good forms of Lælia purpurata, Cattleya Mossiæ and Schrœderæ, a brilliant lot of Læliocattleyas, including L.-c. Hyeana splendens with twenty-eight flowers, Epidendrum O'Brienianum and Boundianum, Masdevallia rosea, Courtauldiana, Veitchiana, and ionocharis, Cypripedium callosum Sanderæ and Maudiæ, some excellent Miltonia vexillaria, Vanda teres and cœrulescens, Renanthera Imschootiana, Maxillaria Sanderiana, Diacrium bicornutum, Cœlogyne Dayana, Dendrobium Thwaitesiæ, some well-flowered Brassocattleyas, and a beautiful series of Odontoglossum crispum and others.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Cup for a handsome group, the centre of which was largely made up of Renanthera

Imschootiana and Phalænopsis amabilis, forming a brilliant contrast, while in front were many fine Cattleya Mendelii and Schrœderæ, with white and coloured C. Mossiæ, C. citrina, Oncidium Marshallianum, concolor, undulatum and Cavendishianum, Brassia verrucosa, Dendrobium chrysotoxum, Dearei, dixanthum, Brymerianum, thyrsiflorum and densiflorum, Stanhopea tigrina, a well-flowered Bifrenaria Harrisoniæ pubigera, Vanda Charlesworthii, and some good Odontoglossums.

Messrs. J. & A. McBean, Cooksbridge, received a Silver Cup for a large and handsome group, including a very fine series of well-grown Odontogiossum crispum, O. c. xanthotes, O. armainvillierense, Gladys, Phœbe, O. sceptrum aureum, O. luteopurpureum Vuylstekeanum with four racemes, O. amabile Princess, O. Uroskinneri splendens, Cattleya Suzanne Hye de Crom, a fine series of C. Mossiæ and Mendelii, Brassocattleya Mendelosa (B. nodosa × C. Mendelii), Oncidium macranthum, Miltonia Phalænopsis, a fine lot of M. vexillaria, and numerous Odontiodas, including Bradshawiæ, Lambeauiana, Charlesworthii and Vuylstekeæ, these being chiefly massed in the front of the group.

Messrs. Mansell & Hatcher, Rawdon, E. Yorks, received a R.H.S. Standard Cup for a large and effective group, arranged in three prominent banks with intervening dells. The centre consisted largely of Renanthera Imschootiana and Miltonia vexillaria, and the sides contained a lot of well-flowered Læliocattleyas, while between were many excellent Odontoglossums, Cattleyas, &c. We noted good examples of Trichopilia Backhouseana, Brassocattleya Leemanniæ, Acineta Humblotii, two fine Schomburgkia Wallisii, Epidendrum aromaticum, Angræcum Sanderianum, Lycaste aromatica, Masdevallia Imogen, Physosiphon Loddigesii, a Goodyera with white-veined leaves, that came with Phalænopsis amabilis, Dendrobium Apollo, Odontoglossum citrosmum album, Phœbe, and various others.

Messrs. Hassall & Co., Southgate, received a Silver-gilt Medal for a good group, including a series of Odontoglossums and Odontiodas, Cattleya Skinneri alba with over twenty flowers, C. Dusseldorfii Undine, C. Mossiæ, C. Schrœderæ alba, some fine Miltonia vexillaria and Renanthera Imschootiana, Oncidium pulchellum, a good Dendrobium Bronckartii, Læliocattleya Ballii, and various others.

Mr. Sidney Flory, Orchid Nursery, Twickenham, received a Silver Flora Medal for a good group, including many fine Cattleyas and Odontoglossums, Lælia purpurata and the white L. p. Queen Alexandra, Lycaste Deppei, Odontoglossum platychilum, Miltonia Roezlii, a well flowered Masdevallia O'Brieniana, a nice batch of Anœctochili, and a series of Trichopilia Backhouseana in front,

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, received a Silver Banksian Medal for a good group of Odontoglossums,

Miltonia vexillaria, Cattleya Skinneri alba and intermedia, Brassolælia Jessopii, Epidendrum Boundii, Cœlogyne pandurata, Cypripedium bellatulum, Cymbidium Lowianum concolor, Odontoglussum Thompsonianum, and other Odontoglossums.

Mr. C. F. Waters, Balcombe, received a Silver Banksian Medal for a group composed chiefly of Odontoglossum crispum and Pescatorei, with a few Cattleya Mendelii and Mossiæ, Renathera Imschootiana, Lycaste Skinneri, Masdevallia Houtteana, Oncidium leucochilum, and Cyyripedium niveum and bellatulum.

Mr. J. Evans, Manor House, Key Green, sent Odontoglossum Evansiæ and O. Ruby Gem, two handsomely blotched hybrids.

Messrs. James Veitch & Sons, Chelsea, staged a number of Orchids in their Gold Medal group of Stove and Greenhouse plants, including some good Cattleyas, Læliocattleyas and Odontoglossums, Disa Luna, Lælia cinnabarina, Brassocattleya Morna, Miltonia vexillaria, &c.

ODONTOGLOSSUM LONDESBOROUGHIANUM.

IT is a profound puzzle to several of our Orchid growers why this remarkable species so seldom flowers in cultivation, and we have been asked for information of its habitat, in the hope that this may suggest a suitable mode of treatment. Unfortunately very little is known about it. It was introduced by Messrs. Backhouse & Sons, of York, and flowered for the first time in cultivation in the collection of Lord Londesborough, at Norbiton, Surrey, in December, 1876, when it received a First-class Certificate from the R.H.S., under the name of Oncidium Londesboroughianum (*Gard. Chron.*, 1876, ii. p. 756), and although Reichenbach afterwards described it as Odontoglossum Londesboroughianum (*l.c.*, p. 772), we believe that it actually belongs to Oncidium, with which it agrees better in habit, structural details, and colour. It is a native of Mexico, and according to Mr. John Day, who figured it in December, 1879 (*Orch. Draw.*, xxv. t. 73), was introduced by Messrs. Backhouse & Sons, in 1870, when both he and Mr. Wilkins, of Leyton, bought plants. After Mr. Wilkins' death his collection was sold at Stevens' Rooms, and it was this plant which was purchased by Lord Londesborough, and flowered as above recorded. Mr. Day's plant died, and the one figured by him is said to have come "last September from Messrs. Backhouse, who made a vast importation of it from Mexico last winter and spring." Messrs. Backhouse state that they do not know the habitat, though their collector informed them that it grows on shelving rocks, fully exposed to the sun, where the temperature rises to 120° F. in the day time, and falls to 50° F. at night. They believe that they have received Odontoglossum citrosmum from the same region, if not from the

identical district (*Gard. Chron.*, 1879, i. p. 342). This would suggest a position near the roof glass of the Cattleya house, where it would receive a maximum of light and heat. Owing to its climbing habit a raft forms a suitable receptacle to grow it on. Its flowers should appear during the autumn before resting, and its non-flowering may often be due to the fact that the bulbs are not strong enough. The leaves are deciduous, and the plant requires a good dry rest during the winter months.

ODONTOGLOSSUM GEORGIUS REX.

THE annexed figure represent the handsome Odontoglossnm Georgius Rex, for which Messrs. Charlesworth & Co., Haywards Heath, received an

Fig. 32. ODONTOGLOSSUM GEORGIUS REX.

Award of Merit at the recent R.H.S. Show at Chelsea, and is reproduced from a photograph kindly sent by the exhibitors. It is said to be a hybrid from O. Rolfeæ crossed with some blotched O. Harryanum hybrid, but which one is uncertain. It bore a very fine inflorescence of magnificent flowers, whose shape is well shown in the figure, while the markings are dark claret colour on a white ground, slightly suffused with rose. The lip is good in shape and colour, and the hybrid is altogether a fine acquisition.

ODONTOGLOSSUM CORADINEI.

IT is interesting to record that Odontoglossum Coradinei has been raised artificially, or at all events a hybrid from O. Lindleyanum × crispum which has long been the accepted parentage of this plant. The doubt lies in the difficulty in ascertaining the actual origin of O. Coradinei. This plant was originally described and figured by Reichenbach over forty years ago (*Gard. Chron.*, 1872, p. 1068, fig. 251), as a beautiful thing—probably a hybrid between O. triumphans and some species of the group of O. odoratum. It was gathered by Messrs. Chesterton and Coradine, and was exhibited some time previously at a meeting of the R.H.S. by Messrs. James Veitch & Sons. The flowers were said to be sulphur yellow, with a large brown blotch on the lip, and one or two others on each of the sepals and petals. A plant with such a parentage could not then have appeared among O. crispum, but there is the possibility that the origin was incorrectly interpreted. At all events, O. Lindleyanum and O. crispum ultimately became the accepted parents, and many natural hybrids showing the character of these two species are now known, though it must be admitted that they do not agree very well with the original figure. They, however, differ greatly among themselves. The point may be cleared up when the Reichenbachian Herbarium is opened. It was in the hope of throwing light on this matter that, in June, 1907, I crossed O. Lindleyanum (a rather poor form being the only one available) with the pollen of an unblotched O. crispum, and the first of a small batch of seedlings has now flowered at Kew. The seedling is most like O. Lindleyanum in character, having a long column with narrow wings, a long-stalked, sharply reflexed narrow lip, with a solid brown blotch in front, and rather narrow yellow sepals and petals, with a few round brown spots. Of course the seedling is not yet fully developed, and it will be interesting to see what variations there are among the other seedlings.

R.A.R.

RITAIA HIMALIACA.

A PLANT of this curious little Himalayan Orchid was recently received at Kew, and is now flowering. It was described by King and Pantling some years ago (*Ann. R. Bot. Gard. Calc.*, viii. p. 156, t. 214) as a new genus nearly allied to Appendicula, but differing in habit and in various structural details. It was dedicated to Mr. Rita, of the Khasia Commission, who had assisted the authors in their work. Ceratostylis himalaica, Hook. f. (*Fl. Brit. Ind.*, v. p. 157; *Hook. Ic. Plant.*, t. 2101) was cited as synonymous. A comparison of the plant, however, shows that it is a true Ceratostylis, and far removed from Appendicula. The plant forms a pendulous mass several inches long, the stems being somewhat branched, and bearing

pendulous leaves of lanceolate shape, while the flowers are borne in the axils of the leaves, and are usually solitary and not at all conspicuous. They are under ¼ inch in diameter, and white-tomentose behind, somewhat resembling an Eria, while the colour is whitish green, with purple margins to the petals, and the swollen apex of the lip yellow. The pollinia are eight in number, clavate, equal, and attached to a small mass of white viscous matter. The species is a native of Eastern Nepal, Bhotan, the Khasia Hills, and Sikkim, in the latter occurring at Tendong, at 5000 feet elevation. I had not previously seen it alive. R. A. R.

ODONTOGLOSSUM CRISPUM VAR. PRINCESS MARY.

WE have received from Messrs. Wm. Bull & Sons, Chelsea, the photograph here reproduced of the beautiful Odontoglossum crispum var. Princess

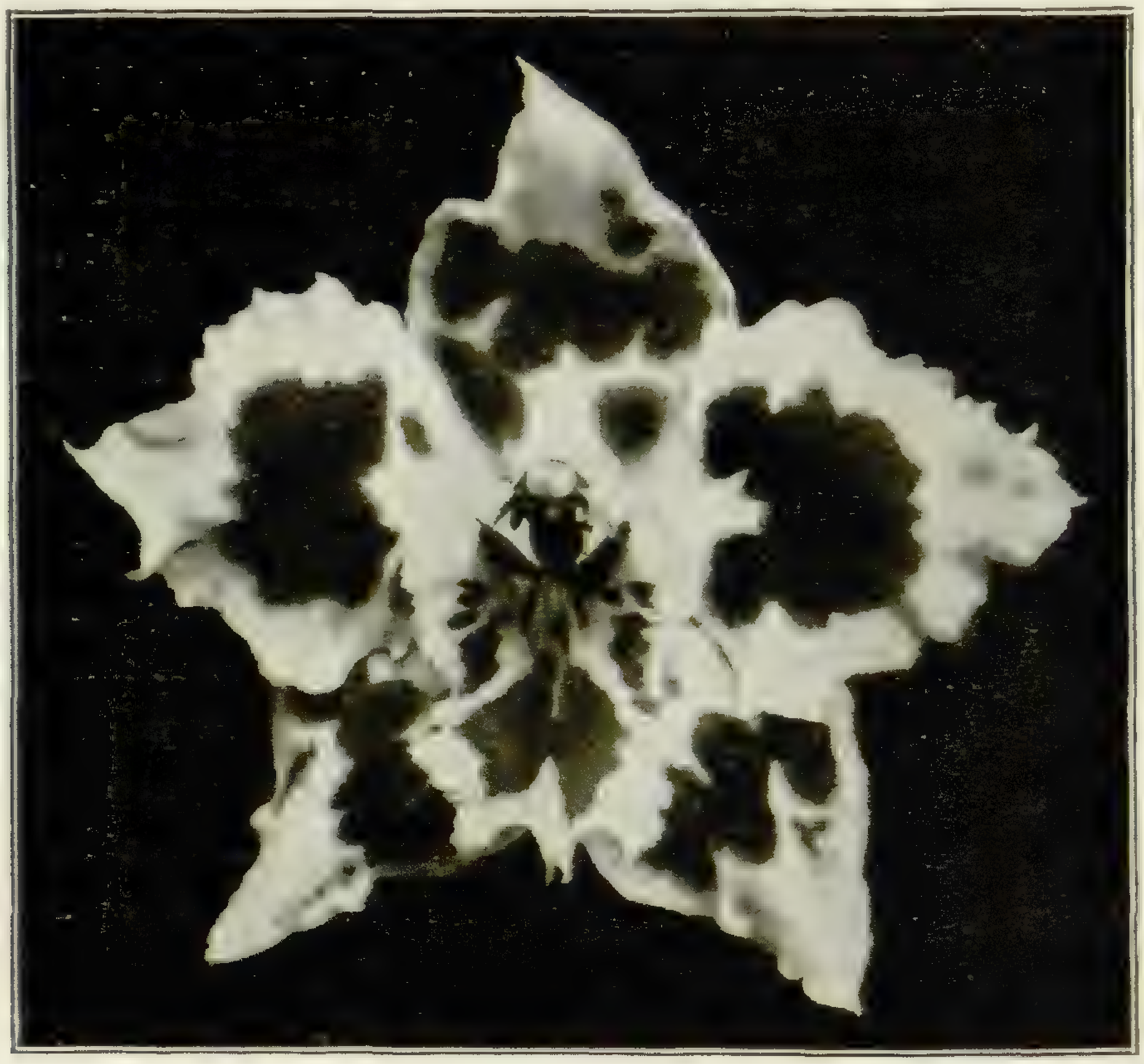

Fig. 33. ODONTOGLOSSUM CRISPUM VAR. PRINCESS MARY.

Mary, a seedling raised by them, and which is said to have been the best out of a batch of 300 to 400 seedlings from the same seed pod. The segments are broad and well fringed, and the blotches large and distinct, and of a clear claret colour, with a broad white margin to the petals and lip. The seedling is said to be six years old. On May 17th the raisers, by Royal Command, had the honour of showing this beautiful variety to Her Royal Highness at Buckingham Palace, and we learn that it will in future grace the Royal Collection.

ODONTONIA CHOLLETII.

THE annexed figure represents a very striking hybrid, raised by Messrs. Sander & Sons, Bruges, from Odontoglossum Harryanum crossed with the pollen of Miltonia vexillaria. The plant may be described as fairly intermediate in habit, but the leaves show the influence of the pollen parent in shape and colour, and the flower is also most like the Miltonia in general character. We saw several seedlings at Bruges, including the one that bloomed last year, which is now bearing a capsule, the aim being to get a batch of secondary hybrids from such a promising plant. Messrs.

Fig. 34. ODONTONIA CHOLLETII.

Sander, however, had a flower painted by F. Bolas, which they have kindly lent to us to photograph and illustrate. The flower, as will be seen, has the expanded shape and broad lip of the Miltonia parent. The ground colour may be described as white, suffused with light purple, and the markings crimson-purple, with here and there shades of brown. The large blotch at the base of the lip, which appears dark in the figure, is deep orange colour. The column is short, as in the Miltonia parent. The markings on the basal half of the lip resemble those usually seen in hybrids of Odontoglossum Harryanum, but there is a purple suffusion in front of

these which has not come out in the photograph. It is a handsome hybrid, and should develop into a fine thing when the plant becomes strong. It is named after M. Chollet, Messrs. Sander's able hybridist at Bruges. We know of only one other hybrid with which it is at all comparable, namely, Odontonia Vuylstekei (*O.R.*, xviii. p. 209), raised by M. Ch. Vuylsteke from Miltonia vexillaria and Odontoglossum amabile, which is very nearly allied, for the Miltonia parent is common to both, while Odontoglossum amabile is partly derived from O. Harryanum. Odontonia Firminii (M. vexillaria × O. crispum), though somewhat similar in shape, is very different in colour. A promising development would be the intercrossing of M. vexillaria with some of the large and very highly-coloured hybrid Odontoglossums now in existence.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

DURING this and the following months, one of the main items in the cultivation of Cool Orchids is to keep the temperature within the limit of 65° F., and should the weather prove hot this is a matter of some difficulty, but the following hints may be of help to a beginner: Keep the house well saturated with moisture, damping down usually three times daily, at ten a.m., midday, and again in the afternoon. Lower the blinds about ten, and do not raise them until the sun is not shining on the house. Admit as much air as possible by means of the top and bottom ventilators, and by these means it will be found that the internal temperature of the house can be kept near the prescribed degree.

Although not of vital importance, I am strongly in favour of having the blind raised a few inches above the roof glass, as by this method a free current of air can pass between this and the glass, thus enabling the latter to be kept cooler than would otherwise be possible.

All plants in flower and actively growing must be kept well supplied with water, and a dose may probably be needed once a day, but any which are passing out of bloom and entering upon their season of rest must be kept drier, merely giving sufficient to kept the compost moist, not wet.

Odontoglossum grande will now be starting into growth, and should be repotted, using a mixture of two parts osmunda fibre to one each of oak leaves and sphagnum moss. Place the plant at the warmest end of the house and in such a position that it will get plenty of light. Pot fairly firmly, and be careful to see that the base of the bulbs is not buried in the compost, but is slightly above it. In my opinion, however, it is now too hot to repot other species and hybrids of Odontoglossum. I prefer to defer it until the beginning of September, when a better start will be made. Thrips are liable to be troublesome now that the warmer weather has set

in, and a sharp watch must be kept for any appearance of these insects. Should any be present, fumigate with tobacco powder, having removed previously any plants which are in flower, or just bursting their buds.

Cymbidiums should now be rooting well, and may receive liquid cow manure once a week. Since these Orchids are such vigorous rooting subjects, and owing to their disliking frequent repotting, I am convinced that some stimulant is necessary to encourage them, and liquid manure has been found eminently satisfactory. An application of this should be, however, immediately followed by a dose of pure rain water.

CYPRIPEDIUM FRANKEANUM.

WHEN the natural hybrid Paphiopedilum Frankeanum was described five years ago (*O.R.*, xvi. p. 29) the history of its two parents, P. Curtisii and P. tonsum, was given, showing that the latter originally appeared quite accidentally in an importation of the former, which it resembled so closely in the foliage as not to have been recognised until it bloomed. We could not then find a record that the cross between the two had been made in gardens, and remarked "we hope it will now be attempted." At the Brussels Botanic Garden a few days ago M. Gentil showed us a seedling in bloom that had been obtained from C. Curtisii crossed with the pollen of C. tonsum, and also gave us a flower, which agrees well with the natural hybrid sent by M. Theodore Franke. The leaves bear a general resemblance to the original P. Curtisii, whose characters on the whole predominate in the flower, though the petals are not so drooping, the blackish spots few in number and not regularly arranged, and the hairs on the upper margin rather longer and much less numerous, characters also noted in the wild hybrid. The dorsal sepal is shortly acuminate, and closely striped with purple and green, and the lip has rather more of the tonsum character. It is very interesting to have the origin of the plant proved experimentally.

R. A. R.

ORCHIDS AT KEW.

THE Orchid Houses at Kew are looking very gay just at present, there being quite a good display of flowers, both in the warm and cool divisions. A number of botanical species may be seen in bloom, a few of the most interesting being as follows :—

Promenæa xanthina is a charming little Cool house subject, and grows best when suspended from the roof-glass in pans. The flowers are bright citron-yellow, spotted with red on the side lobes of the lip.

Kefersteinia graminea is a very rare plant, allied to the preceding. It has no pseudobulbs, and the leaves are five to nine inches long, and the scapes about five inches high, the sepals and petals being light yellowish

green, with lines of brownish-red spots, and the lip yellowish spotted with red-purple. A plant of Stelis muscifera, grown in a five-inch pan, has thirty-eight erect spikes, with from twenty to thirty brownish-red flowers on each.

A good plant of Pleurothallis Birchenallii is flowering on almost every growth, the dark red flowers being very large, and recalling those of P. scapha. It is an exceptionally good grower. Physosiphon Loddigesii is another very floriferous Cool house subject. The plant is growing in a six-inch pan, and has no fewer than forty-six spikes, with about twenty yellowish-brown flowers on each spike.

There are also many interesting Masdevallias in flower, M. Schlimii being especially fine. The plant is bearing a dozen spikes, with five flowers on each. M. tridactylites is a curious little plant that is flourishing. The stems are very slender, and the flowers are curious in shape. The upper sepal is yellow and red, and the lower sepals purplish-red, with clear yellow lateral tails. Masdevallia O'Brieniana is quite a dwarf of the genus, but it is very free flowering. The flowers are borne on short stems, and somewhat resemble M. simula, but are larger, and much more yellow. M. simula is also flowering profusely. Aërides japonicum, like those already mentioned, will thrive in the Cool house. It is a diminutive species, with short leathery leaves and drooping racemes, each bearing six or eight whitish flowers, barred and spotted with purple. It is advisable to suspend this plant from the roof-glass. H. L. S.

ODONTONIA BRUGENSIS.—A remarkable hybrid, raised in the establishment of Messrs. Sander & Sons, Bruges, from Odontoglossum Edwardii crossed with the pollen of Miltonia vexillaria. The plant is most like the Miltonia in habit, to which it bears a marked approach in the shape and colour of the leaves, and in having the flowers well expanded and the lip relatively broad. The example seen bore a short four-flowered scape, which has now been sent to us. The flowers at present have an expanse of one and a quarter inches, and the colour is light violet-purple, with a buff yellow, oblong, tuberculate crest, and a darker purple zone all round it. The petals are also darker at the base, and measure four lines across, while the lip is over half an inch broad, and somewhat pandurate. The column is most like that of the Miltonia parent, with narrow entire wings. It is a very distinct and remarkable hybrid, and has obviously not reached its full development. Indeed, we are told that a form with larger flowers and a broader lip has previously bloomed. We may add that we saw seedlings of considerable size from the same cross in the collection of M. Firmin Lambeau a few days earlier, when it was an interesting speculation as to what the flowers would be like.

CALENDAR OF OPERATIONS FOR JUNE.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE temperatures given for last month will still hold good, likewise such details of general management as the ventilation of the houses, watering the plants, and the amount of atmospheric moisture. Shading must not be neglected whenever the sun's power demands it, as plants are seriously disfigured, if not killed outright, when allowed to become scorched. Owing to the sunlessness of the past two months the climatic conditions have not been favourable to Orchids, therefore as the plants start every inducement should be given them to produce healthy and robust growths, for it is much easier to keep a healthy plant growing than it is to bring an unhealthy one back to the normal condition.

FLOWERING PLANTS.—During the summer months it is good practice to place all plants that are in bloom in a house where the conditions are slightly drier and cooler than the one in which they made their growth, as there is less danger of the flowers becoming spotted and ruined by excessive moisture. Where the number of plants grown will not allow of a house being thus set apart, the driest and coolest position should be selected for those in bloom.

CATTLEYAS.—Amongst those which are in flower at the present time are C. Mendelii, C. Mossiæ, and their innumerable hybrids. C. Trianæ and C. Schrœderæ, with their hybrids, are commencing to make new roots, and should the compost show signs of exhaustion fresh materials should be given. These plants are as easily grown as any others, provided a few simple details are followed. The first is to keep them in a sweet and healthy rooting medium; the second to repot them at those times when they are producing new roots, and the third to water very sparingly after repotting, as no plant will root freely into a saturated compost. If thus treated they soon re-establish themselves in the new material, and receive the least check possible. Another reason why Cattleyas do not thrive in many places is want of air. The atmosphere should be kept buoyant at all times, as a stuffy house is detrimental to them. Lastly, they delight in abundance of light, but are not capable of withstanding strong sunshine.

Plants of C. Warscewiczii (gigas) that are now making strong growths, and showing their flower sheaths, should have abundance of light and heat, and be supplied with water whenever they become dry. This plant, owing to its short season of growth, should receive generous treatment after growth commences, or it will not develop strong pseudobulbs, and it is folly to expect flowers from weak ones. Plants in bloom and those that have not made flower sheaths will greatly benefit by being placed under the

conditions advised for flowering Orchids. When the flowers are faded the plants should receive sufficient water to keep the pseudobulbs plump and healthy. The drastic drying process, often called resting, is most debilitating, and not conducive to flowering. C. Dowiana, and its variety aurea, having now started into growth, may be placed in the warmest position in the house, and must receive generous treatment if the growth is to be satisfactory. These plants should be carefully watered until the flowers open, and when these fade should be treated as advised for C. Warscewiczii. C. Lueddemanniana (speciosissima) is another species that delights in the temperature of the warm Cattleya house, and may be treated in the same manner as those previously mentioned as regards repotting. It can be taken as a general rule to repot any Cattleyas, Lælias, or Læliocattleyas a few weeks after their flowering period, providing they are making, or about to make new roots. C. Warneri and its hybrids grow under similar conditions to the preceding, and the earliest plants will be producing flowers.

LÆLIAS.—By this time the roots of L. anceps, L. albida and other winter-flowering Orchids will have obtained a good hold in the new compost which was afforded early in the present year. As they delight in abundance of light, air, and sun heat, the plants should be inured to it from the commencement of their growth. These Lælias dislike artificial heat or a close atmosphere, but revel in a humid atmosphere with plenty of sun heat and air, both day and night. Under these conditions they will make strong hard pseudobulbs, with thick leathery leaves, and produce flower spikes in abundance at a later period. Syringing or spraying with tepid soft water overhead, both morning and evening, whenever the weather is bright, is highly beneficial, as the foliage and rooting material soon dries under these conditions. The plants should not receive an excess of moisture at the roots, but sufficient to keep the compost moist and the bulbs and leaves healthy. L. monophylla is a little gem that is now producing its flower spikes in the Cool house, and should be kept well up to the light, but a position where they will dry quickly must be avoided. It may receive abundance of moisture at the roots, but must be carefully shaded from sunshine. Should repotting be necessary it may be done after flowering.

LÆLIOCATTLEYAS.—The remarks made respecting the two preceding genera are also applicable to these, and need not be repeated. The majority are of easy culture.

MILTONIAS.—Few plants produce flowers in such abundance as Miltonia vexillaria, and where grown in quantity their flowers may be enjoyed throughout the summer months. Plants that flowered early will have passed out of bloom, and should be afforded a short rest. Nothing should now be done to induce growth, for the longer the period of rest this

species enjoys the stronger will the growth be when the season of activity commences. For some weeks it will only be necessary to keep the compost moist, but on no account must the plants be allowed to suffer for want of moisture either at the roots or in the atmosphere. In damp and cold localities the cool Intermediate house is the best place for this Orchid at this season, but in more favoured districts the warm end of the Cool house is more suitable. The hybrids, M. Bleuana and M. Hyeana, should always be given a position in the Intermediate house. They make their growth in the same way as M. vexillaria, and require similar treatment, with the exception of temperature. They thrive in a slightly higher temperature than M. vexillaria at all seasons.

CYPRIPEDIUMS.—Such plants as C. bellatulum, b. album, niveum and concolor, with their hybrids, C. Boltoni, Venus, Mrs. E. V. Low, Vipanii, and others that have recently flowered, should be repotted if necessary. Well-rooted specimens in good material, and with room to develop, should not be disturbed. These plants are best grown in pots, which must be provided with ample material for drainage purposes. They are often considered difficult to cultivate, which is usually attributable to faulty treatment. Failures are often caused by the excessive use of the water pot, especially during the winter months. Many succeed in growing these plants in a compost in which loam preponderates, but I find they thrive quite satisfactorily in a compost made up of two parts peat fibre, one part loam fibre, and sphagnum moss, with some small pieces of mortar rubble added. The plants must be potted rather firmly, and should be elevated close to the glass in a warm Intermediate house. The greatest secret as regards the successful culture of this plant is to give water at the roots only when really dry, and never to apply water overhead.

ODONTOGLOSSUM CITROSMUM and O. UROSKINNERI.—Plants of these species may be repotted as they pass out of bloom, should they require it. The pots must not be too large, and the drainage must be perfect, the pots being quite half-filled with clean crocks. The usual Odontoglossum compost is quite suitable, and the plants must be potted quite firmly. O. citrosmum thrives suspended quite close to the roof of either the Cattleya or Mexican house, whilst O. Uroskinneri will succeed best at the warm end of the Cool house.

CŒLOGYNES.—Such plants as C. asperata, and others that flower at this season, should be repotted, if necessary, when their growths are well advanced, and about to push forth roots. Owing to the immense quantity of water these plants take up when in full growth, the pots or pans used must be well drained, and the compost must be placed around the plants moderately firmly. They should be grown in a warm humid corner of the East Indian house, and be well shaded from strong sunshine. The species

that produce pendulous flower spikes are best grown in shallow pans, which may be suspended when in flower, where they will be seen to great advantage. Some of the species are of a rambling character, and are difficult to keep in a compact form, therefore it is advisable to sever the rhizome behind the second or third bulb, and when the back bulbs have produced a break they should be potted into small receptacles, when they will soon make flowering plants. Propagation from back bulbs is most interesting, and it is really astonishing how soon many of the small pieces, even of valuable varieties, grow into useful flowering plants.

GENERAL REMARKS.—The cultivators aim during the present month will be to push on with the different details of work, such as potting and cleaning, and that general routine which comprises practically the everyday life of the modern Orchid grower. To the enthusiastic grower, there is always something new coming under his observation, so unlike some of the callings of fellow workers, and whatever the drawbacks of our profession may be, it certainly has much to interest us. Continual watchfulness is necessary to combat the different foes which infest our plants, and the usual remedies should be applied at the earliest possible moment and thus prevent a bad outbreak.

MESSRS. WM. BULL'S ORCHID EXHIBITION.

THE annual Orchid Exhibition held at Chelsea by Messrs. Wm. Bull & Sons always contains many features of interest, and upon our recent visit the effective manner in which the Orchids were placed, here and there in a setting of ferns, showed up the beauty of each plant to advantage, and called forth much admiration. Undoubtedly the main attraction of the show was the magnificent new Odontoglossum crispum var. Princess Mary, whose well-shaped flowers are blotched with vivid claret (See p. 176). Other good forms were Premier, Diadem, and Marjorie.

Many good plants of Læliocattleya Aphrodite & Baden-Powellii were observed, together with a good specimen of Dendrobium Wardianum hololeucum. Three well-grown specimens of D. thyrsiflorum, carrying eight, nine, and eight gracefully pendant flower spikes respectively were much admired, whilst Odontioda Bradshawiæ, Dora, and Vuylstekeæ were of good colouring. Several plants of the deep purple Odontoglossum Fletcherianum (cirrhosum × Edwardii) were bearing long flower spikes, whilst batches of the better-known Brassavola hybrids, such as Brassocattleya Maronii, Brassolælia Helen, and several others proved very attractive.

Altogether the exhibition reflected great credit on Messrs. Bull, the grouping of the other plants, such as Amaryllis and Carnations, with the Orchids, producing a pleasing effect.

C. ALWYN HARRISON.

ODONTOGLOSSUM ELFRIDA.

THE annexed figure represents a striking and beautiful Odontoglossum raised in the collection of Mrs. Norman Cookson, Oakwood, Wylam, from O. Uroskinneri × armainvillierense (ardentissimum), and is reproduced from a photograph kindly sent by Mr. H. J. Chapman. The flower, as will be seen, is of excellent shape, the sepals and petals being very broad and round, and the lip strongly pandurate, with a well-expanded front lobe. The markings are also very regular. Mr. Chapman remarks: "I think it is a lovely thing, the ice-white ground forming a striking contrast to the violet-purple markings. The characters of both parents can be very clearly traced. The hybrids of O. Uroskinneri are not yet a very numerous class, but the one with which it is most comparable is O. Goodsonii (*O.R.*, xvii. p. 280), of which O. Pescatorei Charlesworthii was the second parent, and which has much more purple blotching in the flower. This received a First-class Certificate from the R.H.S. in August, 1909. The difference in the present one arises from the addition of O. crispum in the ancestry. The other Uroskinneri hybrids of which we have records are O. Eleanor from O. cirrhosum; O. Groganiæ, from O. Edwardii; O. Mariæ, from O. Charlesworthii: O. Stamfordianum, from O. bictoniense album: Odontioda Euterpe, from Cochlioda Nœtzliana: O. Seymouriæ, from C. vulcanica, and O. Irene, from Odontioda Charlesworthii. Odontoglossum Groganiæ has a very interesting history, and some remarks on O. Uroskinneri as a parent appeared at p. 133 of our last volume.

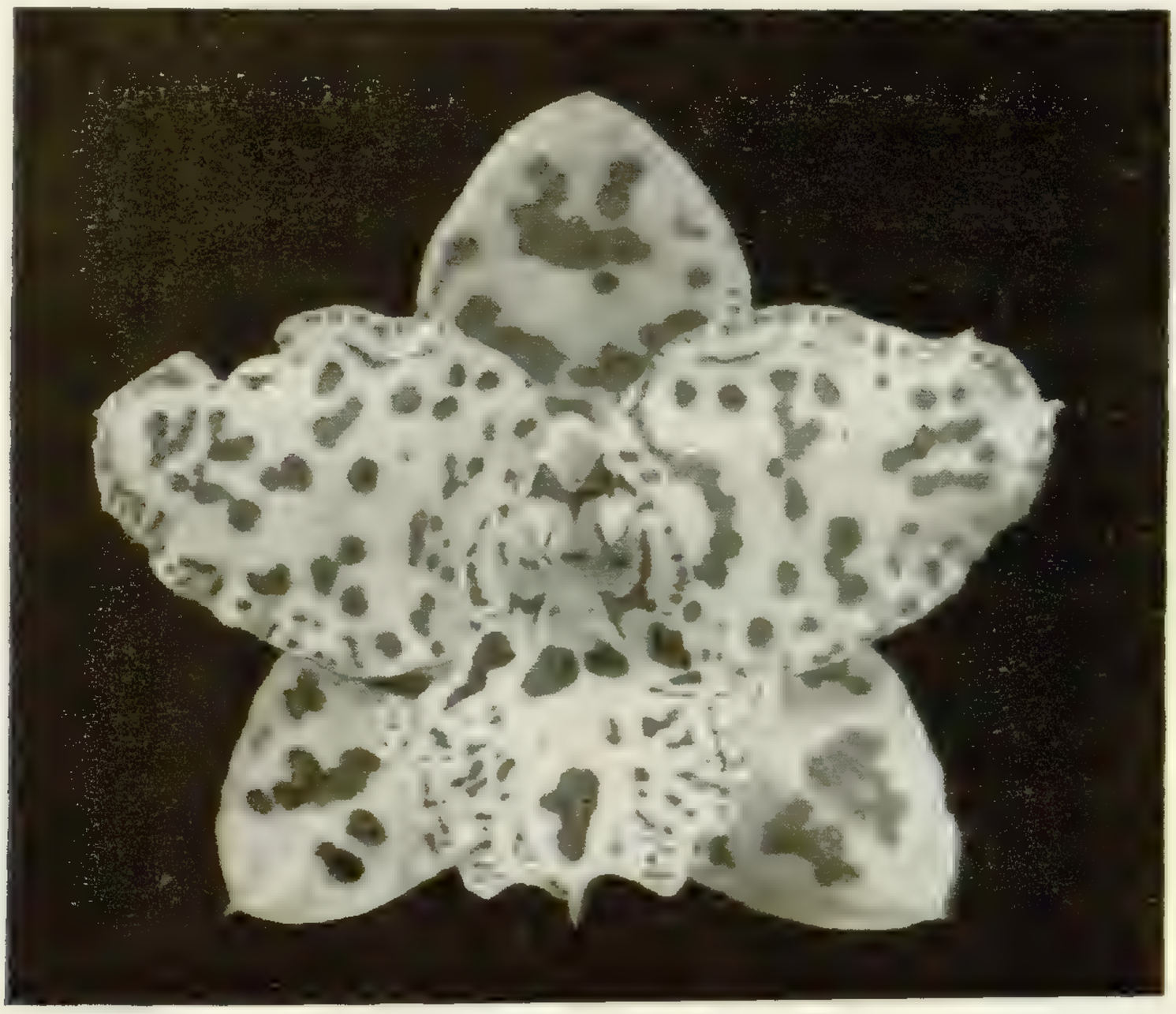

Fig. 35. ODONTOGLOSSUM ELFRIDA.

SOCIETIES.

GHENT QUINQUENNIAL.

(*Concluded from page* 165).

For the finest Selenipedium the Silver-gilt Medal was won by M. Th. Pauwels, Meirelbeke, with S. caudatum Sanderæ.

For the finest Sobralia the Silver-gilt Medal was won by MM. Jean Van de Putte & Cie, with a fine S. macrantha.

For the finest Trichopilia the Silver-gilt Medal was won by M. Th. Pauwels, with T. Hennisii.

For the most remarkable exotic Orchid, species or variety, of a genus not in the preceding classes, the Silver-gilt Medal was won by M. Firmin Lambeau, with Eulophiella Elisabethæ.

For the best basket decorated with Orchid flowers, and for the best Bouquet of Orchids, M. L. Van Haute-Bogaerts, Ghent, gained two Silver-gilt Medals.

Lastly, for the best hanging basket decorated with plants in flower, M. A. Vanden Heede, Ghent, received the Silver-gilt Medal, the plants used being several good Odontoglossum crispum.

Some handsome groups were staged in the non-competitive classes, prizes being awarded as follows :—

The "Val Duchesse" prize, offered by M. Ch. Dietrich, Vice-President of the Cercle des Orchidophiles, Brussels, was awarded to M. Jules Hye de Crom, Ghent, for a very fine group of Miltonias and other Orchids.

An Œuvre d'Art, value 500 francs, was awarded to M. Ch. Vuylsteke, Loochristi, for a magnificent group of hybrid Odontoglossums and Odontiodas.

An Œuvre d'Art, value 250 francs, was given to Messrs. Stuart Low & Co., Enfield, for a very fine collection of Orchids.

A Gold Medal, value 100 francs, was awarded to Messrs. Duchesne & Lanthoine, Watermael, Brussels, for a collection of 50 well-grown Odontoglossum crispum.

Gold Medals of similar value were also awarded to M. Maurice Verdonck, Gentbrugge, for a collection of 75 Orchids; to Dr. Baillion, Ghent, for 75 Orchids, and to M. Arthur Muesser, Woluwe St.-Lambert, for a collection of Odontoglossum crispum.

Silver-gilt Medals were awarded to M. Th. Pauwels, Meirelbeke, for Eulophiella Hamelinii, and to M. Joseph de Hemptinne, St.-Denis-Westrem, for Brassocattleya amabilis var. M. Th. Pauwels.

From the preceding report it will be seen that the prize list was an extensive one, though there were a good many blanks, including classes for the most numerous species, for three new Orchids of different genera, for a

collection of hybrids, for Brazilian, Central American, and Congo Orchids, for Anœctochili, for Masdevallias, several classes for Cypripediums, several others for the Cattleya group, for bigeneric hybrids, for Miltonias, and for twelve Odontiodas, the latter coming rather as a surprise in view of recent developments.

The exhibition on this occasion was held on a new site, in the grounds of the Great International Exhibition to be held from May to November. The Orchids were staged in a set of twelve rooms, near the Central Azalea Hall, six on the ground floor and six in an upper gallery, and the arrangement, though showing individual groups to great advantage, did not enable one to obtain such a good idea of the display as a whole. It also sometimes confused plants that were competing in different classes, unless the distinguishing labels were carefully examined, at the same time separating groups entered in the same class, and in a few cases gave the judges a good deal of running about. The idea evidently was to keep the plants of individual exhibitors together, in whatever class they might be entered. The quality generally was excellent, and many plants of great interest were shown, some of which we shall attempt to notice in glancing through the contributions of individual exhibitors, though anything like a complete report is impossible.

The exhibit of M. Firmin Lambeau, Brussels (gr. M. Demunter pere), occupied a room to itself, and made a very fine display. The group which gained the King's prize was remarkable for richness and variety, and occupied an area with about 50 feet frontage. The back was made up of tall spikes of Cymbidium insigne and C. Pauwelsii, Oncidium Marshallianum, Renanthera Imschootiana, Phalænopsis amabilis, and other tall things, while in the centre were numerous handsome Brassocattleyas, including B.-c. Princess Elisabeth (B.-c. Maronii × C. Mossiæ), some specially fine B.-c. Vilmoriniana, B.-c. Leemanniæ and B.-c. langleyensis, a brilliant series of Cattleyas and Læliocattleyas, conspicuous among them being C. O'Brieniana alba, C. Lueddemanniana Stanleyi, L.-c. Lucie and Golden Glory. There were many fine Miltonia vexillaria, among which M. v. memoria G. D. Owen with twelve flowers was conspicuous, also some excellent M. Bleuana and M. Hyeana, while the numerous Odontoglossums were well grown and beautiful. Odontiodas included the bronzy red O. Charlesworthii Lambeau's var., the superb O. Coronation with fifteen flowers, some good O. Bradshawiæ and O. Chantecleer, the latter almost a reversion to a very fine Cochlioda Nœtzliana. We also noted Phalænopsis Artemis, Masdevallia Veitchiana with fifteen flowers, and others too numerous to mention. Among noteworthy plants which were successful in other classes we may mention Odontoglossum Reine Elisabeth, a seedling of excellent shape, blotched with claret on a white ground, O. Ville de

Gand, a very heavily blotched and handsome hybrid. Cymbidium Lambeauianum, a large creamy white flower tinted with rose and a dark red band on the lip, and Eulophiella Elisabethæ with six spikes.

M. Ch. Dietrich, Anderghem (gr. M. Demunter fil.), included in his beautiful exhibit a fine series of Cattleya Schrœderæ varieties, among which Chantecleer was a fine rose-pink form with bronzy orange throat, some good C. Mendelii, C. Schilleriana, some beautiful examples of Miltonia vexillaria and Bleuana, numerous Odontiodas and Odontoglossums, Dendrobium nobile, Saccolabium giganteum, some brilliant Brassocattleyas and Læliocattleyas, with Oncidium concolor in front, and O. Marshallianum and a fine lot of Cymbidium Pauwelsii and others behind. It was a rich and beautifully arranged group.

M. Jules Hye de Crom, Ghent (gr. M. Coen), staged a remarkable series of Miltonia vexillaria, including both white and rose-coloured forms, with the handsome variety memoria G. D. Owen, and many beautiful examples of M. Hyeana, showing a wide range of variation, the variety Madame Hye de Crom bearing two spikes of four and five flowers, with white ground, a rich ruby red mask with radiating lines at the front of the lip, and a trace of rose-colour at the base of the petals. We also noted a remarkably fine Cattleya Schrœderæ alba var. Louis de Hemptinne, bearing seven flowers with exceptionally broad petals, C. Suzanne Hye de Crom, another very beautiful albino, C. Lueddemanniana alba, Cymbidium Pauwelsii, Odontioda Graireana, a well-flowered Masdevallia caudata, Odontoglossum percultum, O. crispum Oakfield Sunrise, and numerous other choice things.

M. Leon Hye de Crom, Ghent, exhibited a dozen fine blotched Odontoglossums, noteworthy among them being a superb O. amabile, O. Ossulstonii, and O. Orion, a richly-coloured form.

Count Joseph de Hemptinne, St.-Denis-Westrem, exhibited a beautiful group of well-grown plants, including fine forms of Cattleya Schrœderæ, C. S. alba, Miltonia Bleuana nobilior and some good M. vexillaria, a selection of Odontiodas and Odontoglossums, with Odontoglossum Edwardii, Dendrobium pulchellum, Phalænopsis amabilis Rimestadiana, Cymbidium Pauwelsii and insigne, Oncidium Marshallianum and other good things. His fifty Odontoglossums were also very well grown, and the Cymbidium Lowianum an enormous specimen crowded with spikes.

M. L. Hoornaert, St. Nicholas, staged some good plants in his second prize group of Phalænopsis, mostly P. Schilleriana and P. amabilis Rimestadiana, the latter being also second for a single specimen.

M. M. Henri Vacherot et Lecoufle, Boissy-St.-Leger, France, staged some good examples of L.-c. Lucie, bright yellow with crimson on the lip, and others, in the class for twenty Læliocattleyas.

Dr. Baillion, Ghent, staged a beautiful group of seventy-five Orchids in a non-competitive group, including a fine Phalænopsis Schilleriana, Cymbidium Pauwelsii, the albino Cypripedium memoria Alma Gevaert, a beautiful Brassocattleya Marieæ, and some good Odontiodas, Odontoglossums, and Oncidiums.

M. Ch. Maillard, St. Andre lez Lille, staged some beautiful things in the class for the best collection of Odontoglossums, including O. eximium, loochristiense, concinnum, Charlesworthii, Doris, and others, with a beautiful example of Odontioda Ajax.

M. Arthur Meusser, Woluwe-St.-Lambert, also staged some good things in a non-competitive group of Odontoglossums.

M. Th. Pauwels, Meirelbeke, made a remarkably fine display in the Nurserymen's class for the best and most varied group of Orchids. The back was made up of numerous plants of Cymbidium Pauwelsii, C. Alexanderi, C. Humblotii, C. Lowianum concolor, some fine forms of Odontoglossum Thompsonianum and other O. Edwardii hybrids, with Oncidium Marshallianum and O. superbiens, and fine examples of Dendrobium Phalænopsis, pulchellum and Jamesianum, while in front was a brilliant series of Odontiodas and Odontoglossums, Chysis bractescens, Cattleyas, Læliocattleyas, and Brassocattleyas, a very fine Maxillaria Sanderiana, some excellent Miltonias and Odontocidium Edwardatum (O. Edwardii × O. serratum), while a plant of Odontioda floribunda, with a great panicle of twenty-two branches crowded with flowers was also remarkable. The group had a margin of Oncidium concolor in front. His winning group of Phalænopsis Schilleriana and amabilis, and of thirty exotic Orchids, were also excellent in quality, while the Trichopilia Hennisii, Lycaste Skinneri alba La Perle, Cypripedium Alcibiades Roi Albert, Selenipedium Schrœderæ, S. caudatum Sanderæ, Masdevallia Pourbaixii, Epidendrum radicans, Phaius Norman, Cymbidium Pauwelsii var. Andre, and Aërides Houlletianum, which received the prizes in their respective classes, were also noteworthy. Eulophiella Hamelinii with two spikes, was awarded a special prize.

Messrs. Charlesworth & Co., Haywards Heath, staged a very rich and varied group, in which the Odontoglossums were specially remarkable, including a brilliant series of O. eximium, blotched seedling forms of O. crispum, O. illustrissimum Black Prince, O. Wilckeanum Imperator, Thompsonianum, Aireworth, Dora, and others, while Odontiodas contained the bronzy red O. Joan, superb forms of O. Bradshawiæ, Charlesworthii, Lutetia, Diana, Latona, Wilsonii, and Edna. Læliocattleyas included the apricot yellow L.-c. Feronia, and some purple forms, while the yellow Brassocattleya Joan var. Rayon d'Or, and forms of B.-c. Veitchii and others were very attractive. The group also contained the striking purple

Oncidium Claesii, some fine O. Marshallianum, Eulophiella Elisabethæ, Cymbidium Humblotii, with four racemes, Phaius simulans, Œonia polystachya, Zygopetalum Perrenoudii, Vanda Denisoniana, Leptotes bicolor, Maxillaria Sanderiana, Odontocidium Fowlerianum, Cœlogyne pandurata, some excellent Miltonia Bleuana and vexillaria, the latter including var. Lyoth, a beautiful rose-coloured seedling with a crimson mask on the base of the lip, and others too numerous to mention, forming one of the richest and most beautiful groups in the show.

M. Ch. Vuylsteke, Loochristi, staged a remarkable group of Odontoglossums and Odontiodas in a glass case of seven métres frontage, and containing over sixty plants. Noteworthy among the Odontoglossums were O. Aiglon var. giganteum, an immense flower, heavily blotched with purple on a white ground, some brilliant forms of eximium, percultum, and amabile, Pomona, suffused with slaty blue and a white margin. Saturnus, deep blue purple, Diamant, a fine white, Armide, maroon-purple, Queen Elisabeth, white with purple blotches, La Candeur, white with an occasional purple blotch, Lawrenceanum, and O. excellens Themis, a large yellow form. The Odontiodas were brilliant in the extreme, and included Etna, intense scarlet, Gloria Mundi, a large and richly-coloured form, Brilliant, deep rose-colour, Vulcan, intense crimson, Blushing Bride, a lovely blush pink form without a trace of scarlet, Pierrot, white, with light flesh brown blotches, Vuylstekeæ Enchantress, a large and very beautiful form, formosa, a deep scarlet with traces of yellow lines, almost a reversion to a large Cochlioda Nœtzliana in shape, and many others.

M. Maurice Verdonck, Gentbrugge, carried off most of the prizes in the geographical groups, and his group of Orchids from Peru and Colombia contained good examples of Masdevallia coccinea, amabilis, Chimæra, and ephippium, Odontoglossum cirrhosum and polyxanthum, Cochlioda Nœtzliana and vulcanica, Miltonia Warscewiczii, and others, while among the Indian group were good examples of Phalænopsis Schilleriana and amabilis, Dendrobium Phalænopsis, and others, Cymbidium insigne and Schrœderi, Cypripedium tonsum, Chamberlainianum, Rothschildianum, barbatum, &c. The groups for twenty-five and twelve Dendrobiums contained well-flowered examples of D. nobile, Wardianum, densiflorum, chrysotoxum, infundibulum, crassinode, and others, while his fifty Odontoglossum crispum was a well-grown lot of the typical unspotted form, and made a fine show. The group of fifty Orchids for florists' work included good representatives of many popular varieties.

Messrs. Stuart Low & Co., Enfield, staged a fine group of showy Orchids, including some good Dendrobium Wardianum, Miltonia vexillaria, Cattleya Schrœderæ and Trianæ, Læliocattleya Dominiana, Brassocattleya langleyensis, Maroniæ, and Fowleri, fine specimens of Odontoglossum

spectabile, and others, Cymbidium Lowgrinum with two racemes, the rare Pleurothallis Birchenallii, Polystachya paniculata, Odontioda Charlesworthii, a fine Oncidium lamelligerum, and a lot of good O. concolor in front.

M. Emile Praet, Mont-St.-Amand, staged a number of good things in the premier group of fifty Orchids (Nurserymen), the centre of which was made up of a pyramid of Dendrobium Phalænopsis, Renanthera Imschootiana, and Phalænopsis amabilis, while in front were some good Læliocattleya Hyeana, Brassocatleyas, Miltonia vexillaria, including var. leucoglossa with four spikes, Odontoglossums, a fine Odontioda Vuylstekeæ, and others. He also gained the second prize for thirty Orchids and for Indian Orchids with good collections.

M. M. Van de Putte & Cie., Ledeberg, staged some good plants of Oncidium Cavendishianum, sarcodes, and others, in a group of Oncidiums, and it was a fine plant of the former that secured the prize for the best Oncidium. They were also first for a Sobralia, with S. macrantha, second for Lycastes, with L. Skinneri, and second for fifty Orchids (Nurserymen) with a well-arranged collection.

M. M. A. & G. Janssens, Merxem, staged some good things in their second prize group for fifty Orchids, among which Odontoglossum crispum roseum, Cymbidium Pauwelsii, with Cattleya Lawrenceana, Mendelii and Schrœderæ were conspicuous. In the same class M. Rene Beheils-Van-Poucke, St. Nicholas, was third, his group also containing some interesting things.

Messrs. Duchesne & Lanthoine, Watermael, staged a beautiful group of fifty plants of the typical Odontoglossum crispum, as a non-competitive group, to which a Gold Medal was awarded.

Orchids were also used with great effect in many groups of floral decoration, for which they are eminently suited by reason of their graceful scapes and charming colours.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 29th, when there was a rather small display of Orchids, and the awards consisted of four medals, one Award of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), R. Brooman White, J. Wilson Potter, W. Cobb, R. G. Thwaites, T. Armstrong, J. Charlesworth, J. Cypher, J. E. Shill, A. Dye, W. H. White, W. Bolton, C. J. Lucas, Gurney Wilson, and Sir Jeremiah Colman, Bart.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent a very fine specimen of Cattleya Enid Westonbirt var.

bearing a spike of six magnificent flowers, also C. Prince Olaf Westonbirt var., and the blush-white C. Schrœderæ Luna.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Ridden), showed Odontioda Kitty (O. wickhamiensis × Odontoglossum armainvillierense), with rich claret-red flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Cattleya Mendelii Blanche, blush-white with a white lip, Odontoglossum illustre Radium, and O. hellemense var. Watsonianum (harvengtense × crispum), a richly-blotched form.

Lord Grantly, Oakley Hall, Colchester (gr. Mr. Mabbett), sent a plant reputed to be a cross between Chysis bractescens and "Phaius Swinburnei," which, however, appeared to be identical with the Chysis.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent two good specimens of Brassocatlælia Triune.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent finely-coloured varieties of Odontoglossum Aireworth and O. Doris, also Odontioda Vuylstekei Ashtead Park var. (C. Nœtzliana × O. Pescatorei Veitchianum), with flowers of uniform deep rosy scarlet.

Messrs. James Cypher & Sons, Cheltenham, staged a fine group, to which a Silver Flora Medal was awarded. It contained some good forms of Miltonia Bleuana, M. vexillaria, and Odontoglossum crispum, with Cœlogyne nitida, the striking Chondrorhyncha Chestertoni, Brassocatlælia Leeana, an Eria with orange-red flowers, some yellow Dendrobiums and Oncidiums, Masdevallia caudata, M. Houtteana, M. bockingensis, and others.

Messrs. Hassall & Co., Southgate, received a Silver Banksian Medal for a group of Odontoglossums, Miltonia vexillaria, and Læliocattleya Ballii.

Mr. A. W. Jensen, Lindfield, Sussex, received a Silver Banksian Medal for a good group, including some excellent Odontoglossum crispum, Oncidium Marshallianum and Cattleya Mendelii.

Mr. C. F. Waters, Balcombe, also received a Silver Banksian Medal for a good group of Cattleya Mendelii and Schrœderæ, Miltonia vexillaria, Odontoglossums, Lycaste Skinneri, and other showy Orchids.

Messrs. Sander & Sons, St. Albans, sent the beautiful Læliocattleya Boylei var. Kerchoveæ, and Cattleya Mendelii Dreadnought, a large rosy lilac form with the front of the lip violet-purple.

Messrs. James Veitch & Sons, Chelsea, sent Brassocatlælia Geraid (B.-l. Veitchii × Læliocattleya bletchleyensis), a large and showy hybrid with soft rose-pink sepals and petals and a rather darker lip.

AWARD OF MERIT.

ODONTOGLOSSUM AMABILE *ZEUS*.—A very large and handsome form, having broad white sepals and petals, blotched and spotted with reddish

purple on the lower halves, and the lip with a dark purple blotch in front of the yellow crest. Exhibited by Lt.-Col. Sir G. L. Holford, K.C.V.O.

CULTURAL COMMENDATION.

EPIDENDRUM LEUCOCHILUM.—To Mr. W. H. White, gr. to Sir Trevor Lawrence, Bart., K.C.V.O., for a very fine specimen, bearing six spikes of from eight to fifteen flowers, with greenish sepals and petals and a white lip.

At the meeting held on Wednesday, May 14th, there was a very small display of Orchids, doubtless on account of the Spring Show to be held at Chelsea a week later, but the quality was good, and the awards consisted of four Cultural Commendations, three Awards of Merit, one Botanical Certificate and one medal.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, A. McBean, R. A. Rolfe, Walter Cobb, J. Cypher, H. G. Alexander, A. Dye, W. H. White, S. W. Flory, and Sir Harry J. Veitch.

Sir George H. Kendrick, Whetstone, Edgbaston, Birmingham (gr. Mr. Macdonald), was awarded a Silver Flora Medal for a group of a dozen fine plants of Dendrobium pulchellum (Dalhousieanum) all derived from one original one. The plants were four to five feet high, and bore three and four spikes each.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), showed a small group of choice and well grown Orchids, including the remarkable Dendrobium thyrsiflorum Galliceanum, in which the lip is shell-shaped and paler in colour than the type, a fine clump of Cochlioda sanguinea with numerous spikes, Læliocattleya Fascinator, and fine examples of Odontoglossum crispum Oakfield Sunrise, with a spike of thirteen flowers, O. c. Rossendale, and O. c. purpurascens.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Odontoglossum Pavlova, of unrecorded parentage, and bearing a spike of eleven claret-coloured flowers.

C. Alwyn Harrison, Esq., Lyndhurst, Watford, sent Læliocattleya Elsie Lemare, with blush-pink sepals and petals, and a rose-purple lip with deep yellow throat, and Odontoglossum Ianthe Harrison's var. (armainvillierense × Hallii-crispum), a white flower well blotched with cinnamon-brown.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Odontioda Sanderæ (C. Nœtzliana × O. percultum), bearing seven very brilliant rosy scarlet flowers.

Mr. R. A. Rolfe showed flowers of two interesting hybrids, grown at Kew, the crosses having been made by him to prove the parentage of natural hybrids. These were Odontoglossum Lindleyanum × crispum, yielding a yellow flower blotched with brown, referable to O. Coradinei with rather

narrow segments, and Lælia Boothiana × Cattleya intermedia, giving a blush-pink flower, with the front of the three-lobed lip purple, not quite identical with Læliocattleya amanda, though thought to be a form of the same hybrid. The flower shown was from a spike of five.

The Liverpool Horticultural Company, Gateacre, Liverpool, staged an interesting group, including forms of the variable Læliocattleya Cowanii, L.-c. highburiensis, L.-c. Schilleriana × Mossiæ, hybrids of Lælia cinnabrosa and others, also Cypripedium bellatulum Queen of Spain, with light rose-pink blotches.

Messrs. J. and A. McBean, Cooksbridge, sent Odontioda Lambeauiana, a richly-coloured form, with traces of a white ground showing in the lip.

AWARDS OF MERIT.

BRASSOCATLÆLIA VEITCHII THE DELL VAR. (L. purpurata × B.-c. Veitchii).—A remarkably large and richly-coloured form, having the sepals and petals tinged with rose, and the lip deep rose-purple shading off to rosy lilac at the fringed margin. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

LÆLIOCATTLEYA FASCINATOR-MOSSIÆ BURFORD VAR.—A large and well shaped hybrid, having blush-white sepals and petals with a small purple apex to the latter, and the front of the lip violet-purple with a pale margin. Exhibited by Sir Trevor Lawrence, Bart.

ODONTOGLOSSUM PHŒBE SPLENDENS (cirrhosum × crispum).—A large and striking form, having broad acuminate white sepals and petals, with a few very large maroon blotches. Exhibited by Messrs. J. and A. McBean.

BOTANICAL CERTIFICATE.

LISSOCHILUS STREPTOPETALUS.—A very fine specimen, bearing eight spikes of flowers, with bright yellow petals, and the smaller sepals green striped with brown. The plant was collected in the N'gongo Hills, at 8300 feet elevation, about 30 miles from Nairobi. Exhibited by William Van de Weyer, Esq., Smedmore House, Corfe Castle.

CULTURAL COMMENDATIONS.

BRASSOCATTLEYA NIVALIS.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a fine specimen bearing nine racemes of nearly white flowers, and producing a very graceful effect.

DENDROBIUM FALCONERI.—To Mr. Branch, gardener to W. R. Lee, Esq., Heywood, for a finely grown specimen some 2½ feet high and bearing about 200 flowers.

DENDROBIUM PULCHELLUM (Dalhousieanum).—To Mr. C. J. Salter, gardener to the Right Hon. Lord Lawrence, Chetwoode Manor, Buckingham, for a noble specimen, over six feet high, and bearing thirteen racemes of flowers. A similar award was given to Mr. Macdonald, gardener to Sir G. H. Kenrick, for a group of twelve plants of the same species.

NEW YORK NATIONAL SHOW.

AN account of the Third National Flower Show, held at New York early in April, is reported in *Horticulture* for April 12th and 19th. It is remarked that a much sought-for exhibit was the sensational Odontioda Bradshawiæ (C. Nœtzliana × O. crispum Mary Colman) sent over by Sir Jeremiah Colman from England. The flowers are rich vermilion, and the plant bore two fine spikes. The awards in the Orchid section are reported as follows:

Orchids in flower, 100 sq. ft.—Gold Medal and 1st, Julius Roehrs Co.; 2nd, James Goodier, Trenton, N. J.

Orchids, twelve plants.—Silver Medal and 1st, Anton Schultheis; 2nd, W. A. Manda.

Orchids, six plants.—Clement C. Moore, Hackensack, New Jersey (gr. John Mossman).

Brassocattleya.—1st, Clement Moore; 2nd, Lager & Hurrell, N. J.

Orchid, Specimen.—Silver Cup, 1st, Sir Jeremiah Colman, Gatton Park, England; 2nd, W. A. Manda.

Cattleya Mossiæ.—1st, Lager & Hurrell; 2nd, W. A. Manda.

Cattleya Schrœderæ.—First, Mrs. F. B. Van Vorst (gr. A. Anderson); 2nd, W. A. Manda.

Cypripediums.—1st, Lager & Hurrell; 2nd, W. A. Manda.

Dendrobium, twenty plants.—Gold Medal, W. A. Manda.

Dendrobium nobile.—1st, Sidney M. and Austin Colgate, Orange, N. J. (gr. Wm. Reid); 2nd, W. A. Manda; 3rd, Lager & Hurrell.

Dendrobium Wardianum.—W. A. Manda.

Dendrobium, Specimen.—1st, Julius Roehrs Co.; 2nd, W. A. Manda.

Hybrid Orchid, raised in America.—Gold Medal, 1st, James Goodier; Silver Medal and 2nd, W. A. Manda.

Læliocattleya.—1st, Lager & Hurrell; 2nd, W. A. Manda.

Any other Bigeneric Hybrid.—1st, W. A. Manda; 2nd, Lager & Hurrell.

Odontoglossum.—1st, Julius Roehrs Co.; 2nd, Sir Jeremiah Colman.

Oncidium, specimen Lælia, and Cypripedium hybrid.—W. A. Manda.

Vanda.—1st, Lager & Hurrell; 2nd, W. A. Manda.

Specimen, any other Orchid.—1st, Lager & Hurrell; 2nd, C. C. Moore.

Group of Hybrid Orchids.—Gold Medal to Clement C. Moore.

Orchid species.—1st, Clement C. Moore; 2nd, W. A. Manda.

Orchid hybrid.—1st, Clement C. Moore; 2nd, W. A. Manda.

Corsage of Orchids.—1st, Max Schiling; 2nd, Boston Cut Flower Co., Boston.

A late arrival at the show is said to have been a case of Orchids from W. A. Manda's English branch, which came in remarkable condition after being on the water nine days. Hybrid Odontoglossums, plants and cut blooms, and Cypripediums were the principal item (Gold Medal).

MANCHESTER & NORTH OF ENGLAND ORCHID.

AT the meeting held at the Coal Exchange, Manchester, on April 17th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, A. Hanmer, W. Hatcher, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, F. K. Sander, H. Thorp, A. Warburton, E. H. Davidson, and H. Arthur (Secretary).

A Gold Medal was awarded to *Z.* A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a magnificent group, composed chiefly of Odontoglossums of the crispum section, with some very fine hybrids and other good things.

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), whose group included the original Odontoglossum Pescatorei xanthotes, imported several years ago, and A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for very fine mixed groups.

Large Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and W. R. Lee, Esq., Heywood (gr. Mr. Branch), for choice groups.

A Silver Medal was awarded to J. Lawson, Esq., Sharples, Bolton (gr. Mr. Pountain), for a group of very fine, well-flowered plants of Dendrobium Wardianum and Odontoglossums in variety.

Bronze Medals were awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for a small group of Cypripediums, and to Messrs. A. J. Keeling & Sons, Bradford, for a good miscellaneous group.

Interesting exhibits were staged by W. Thompson, Esq., Walton Grange (gr. Mr. Howes); H. Arthur, Esq., Blackburn; Mr. E. H. Davidson, Twyford; and Messrs. Armstrong & Brown, Tunbridge Wells.

FIRST-CLASS CERTIFICATES.

Odontoglossum Mrs. Thompson (parentage unknown), a large flower, with wavy segments of almost solid colour; and Odontioda Wm. Thompson, of good colour, $2\frac{3}{4}$ inches across, both from Wm. Thompson, Esq.

Brassocatlælia King Emperor (L.-c. callistoglossa × B.-c. Veitchii), a magnificent flower, over eight inches across, with broad petals and lip, the latter with a yellow throat and deep maroon band, from W. R. Lee, Esq.

Odontoglossum crispum militare, a good round flower, very bright, and of almost solid colour, from A. Warburton, Esq.

Odontoglossum crispum Orchid Dene var., a large flower, with fringed, heavily blotched sepals and petals, from Mr. E. H. Davidson.

AWARDS OF MERIT.

Odontioda Bradshawiæ Hestia, and O. Evadne, from W. R. Lee, Esq.

Odontonia Edna (O. Wilckeanum × Miltonia Warscewiczii), and Læliocattleya Mrs. Temple Ashlands var., both from R. Ashworth, Esq.

Odontoglossum crispum var. J. Howes, from Wm. Thompson, Esq.

Odontoglossum Dreadnought, from *Z.* A. Ward, Esq.

Odontoglossum Aurora (Rossii rubescens × Lambeauianum), and O. crispum rotundum, both from Mr. E. H. Davidson.

Dendrobium Harveyanum, from Messrs. A. J. Keeling & Sons.

AWARD OF APPRECIATION.

Odontoglossum cordatum aureum, from R. Ashworth, Esq.

BOTANICAL CERTIFICATE, 2ND CLASS.

Epidendrum Lambda, from Messrs. A. J. Keeling & Sons.

At the meeting held on May 1st the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, J. Evans, Dr. Hartley, A. J. Keeling, J. Lupton, D. McLeod, W. Morgan, C. Parker, A. Warburton, E. H. Davidson, and H. Arthur (Secretary).

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); Messrs. J. Cypher & Sons, Cheltenham,; Messrs. A. J. Keeling & Sons, Bradford; and Mr. D. McLeod, Chorlton-cum-Hardy, for good miscellaneous groups.

Interesting exhibits were staged by Mrs. Gratrix, Whalley Range (gr. Mr. Brown); J. Leemann, Esq., Heaton Mersey (gr. Mr. Smith); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); and Mr. J. Birchenall, Alderley Edge.

A Bronze Medal and Cultural Certificate were awarded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), for three plants of Anguloa Clowesii, one carrying seven flowers.

FIRST-CLASS CERTIFICATES.

Brassocatlælia Triune var. Gratrixiæ (L.-c. Hyeana × B.-c. Schrœderæ-Digbyana), a magnificent flower, with a wide, drooping, well-coloured lip, from Mrs. Gratrix.

Odontoglossum Jasper Orchid Dene var. (amabile × crispum), a large, well-spotted flower on a rosy ground, and O. Aireworth Borlases var. (crispum × Lambeauianum), a very fine form, of almost solid colour, from Mr. E. H. Davidson.

AWARDS OF MERIT.

Cattleya Enid var. illustris and C. Mendelii var. Regina, both from J. Leemann, Esq.

Læliocattleya Duchess of Connaught (L. harpophylla × C. Schrœderæ) from Mrs. Gratrix.

Cattleya Schilleriana splendens, from P. Weathers, Esq., Old Trafford.

The Annual General meeting was held at 2.30 p.m. R. Ashworth, Esq., was appointed President and Hon. Treasurer of the Society, with the Rev. J. Crombleholme, Chairman, Z. A. Ward, Esq., Vice-Chairman, H. Thorp, Esq., Hon. Auditor, and H. Arthur, Secretary.

A Committee was appointed, and the prizes were presented to the successful exhibitors as follows:—

S. Gratrix's Cup, to *Z.* A. Ward, Esq., gr. Mr. Weatherby.

E. H. Davidson's Cup, to *Z.* A. Ward, Esq., gr. Mr. Weatherby.

Cypher's Gold Medal, to *Z.* A. Ward, Esq., gr. Mr. Weatherby.

Z. A. Ward's Gold Medal to Col. J. Rutherford, M.P., gr. Mr. Lupton.

O. O. Wrigley's Gold Medal to A. Warburton, Esq., gr. Mr. Dalgleish.

Sander Prizes, Mr. Lupton (gr. to Col. J. Rutherford, M.P.), Mr. Marshall (gr. to Rev. J. Crombleholme), equal Firsts, and Mr. Weatherby (gr. to *Z.* A. Ward, Esq.), Third.

The Society's Gold Medal (for Amateurs without gardener), to H. Arthur, Esq., and Silver-gilt Medal to F. A. Hindley, Esq.

A Gold Medal and Prize to Gardener (given by a member of the Society), was presented to R. Ashworth, Esq., (gr. Mr. Gilden,) for meritorious exhibits during the session.

Several prizes were offered for competition during the coming session, due notice of which will be given.

ORCHIDS IN SEASON.

A SPIKE of a fine deep red form of Odontioda Bradshawiæ bearing twenty-one flowers, is sent from the collection of Mrs. Fielden, Grimston Park, Tadcaster, by Mr. G. P. Bound.

Several interesting seedling Odontoglossums have been sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. F. W. Thurgood. O. crispum Mrs. Pitt is a good round flower, irregularly blotched with claret colour on a white ground, and O. c. Flambeau has a purple suffusion on the petals and cinnamon-brown on the petals, leaving the apex and margins white. A third shows some influence of O. Harryanum in the markings on the lip, and a fourth is yellow with a few brown spots, and shows an approach to O. Wilckeanum in shape. A fifth recalls a heavily blotched O. excellens, or some other O. triumphans hybrid. Lastly three are seedlings of O. Edwardii. All were raised in the collection, and are very promising.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during June, on the 3rd and 17th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The following meeting is the great Summer Show, to be held at Holland House, Kensington, on Tuesday, Wednesday, and Thursday, July 1st, 2nd, and 3rd. Cups and Medals will be awarded according to merit. The sixty-

guinea Coronation Challenge Cup will be awarded by the Council, in open competition, to what, in their opinion, is the most meritorious group in the Show (excluding the winner of the two previous years). The Judging will commence at 10 a.m., and the Orchid Committee will meet half an hour later.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on June 5th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for July 3rd.

The following competitions are announced for the coming year:—

Silver Cup, and Prize to Gardener, for general excellence, presented by R. Ashworth, Esq.

Medals, and Prize to Gardener, for Cypripediums, presented by J. J. Bolton, Esq.

Silver Cup, and Prize to Gardener, for Odontoglossums, presented by Mr. E. H. Davidson.

Medal, and Prize to Gardener, for Cattleyas, presented by Mr. J. Evans.

Objet d'Art, and Prize to Gardener, presented by Messrs. Charlesworth & Co.

Prizes for Groups, presented by Messrs. Sander & Sons.

Medal, for Arrangement, presented by Messrs. Cypher & Sons.

Medal, presented by the Botanic Society of Manchester.

SUMMER EXHIBITION AT GHENT.—A second Horticultural Exhibition at Ghent is being organised by the Cercle Horticole van Houtte, to be held in the Palace of Horticulture, from August 9th to 18th. Orchids will form one of the leading features of the Show, and numerous prizes are offered. Schedules can be obtained from the Secretary, M. Francois Spae, Ghent. Entries must be sent by July 25th at the latest.

We learn from *Horticulture* that a 4000 dols. collection of Orchids, native to many foreign countries, has been offered to the city of Omaha, Neb., free by Mrs. George A. Joslyn, in addition to 1000 dols. in money with which to care for them. The Joslyn residence was badly damaged in the tornado, and probably half of the plants in their private greenhouse were destroyed. Park Commissioner Hummel has asked the city commission for 3000 dols. with which to build a greenhouse in Hanscom Park, where the plants could be kept.

We learn that the collection of Orchids formed by Sir William Bass, at Byrkley Lodge, near Burton-on-Trent, is to be dispersed under the hammer by Messrs. Knight, Frank & Rutley, early in July.

HONOUR FOR MR. R. A. ROLFE.—We are pleased to learn that the French Académie Internationale de Géographie Botanique has awarded to Mr. R. A. Rolfe its Scientific Medal in recognition of his work among Orchids. In addition to his valuable work in the Kew Herbarium, Mr. Rolfe has edited the *Orchid Review* since its commencement in 1893. The honour is conferred upon Mr. Rolfe at a fitting time, as it marks the coming-of-age of the *Orchid Review*.—*The Garden.*

ORCHID PORTRAITS.

CATTLEYA TITYUS SHRUBBERY VAR.—*Gard. Mag.*, 1913, p. 333, with fig.

CATTLEYA *ZEPHYRA*.—*Horticulture*, 1913, p. 741, with fig.

CYMBIDIUM SCHLEGELII.—*Gard. Mag.*, 1913, p. 234, with fig.

CYPRIPEDIUM AUREUM HYEANUM.—*Journ. Hort.*, 1913, i. p. 421, with fig.

CYPRIPEDIUM ROUNDHEAD.—*Gard. Mag.*, 1913, p. 338, with fig.

LÆLIOCATTLEYA BRITANNIA WESTONBIRT VAR., *Gard. Mag.*, 1913, p. 377, with fig.

LÆLIOCATTLEYA NELLA.—*Gard. Mag.*, 1913, p. 335, with fig.

ODONTIODA BRADSHAWIÆ.—*Gard. Mag.*, 1913, p. 337, with fig.

ODONTOGLOSSUM AMABILE VAR. *ZEUS*.—*Gard. Mag.*, 1913, p. 311, with fig.

ODONTOGLOSSUM EMPRESS OF INDIA.—*Gard. Mag.*, 1913, p. 379, with fig.

ODONTOGLOSSUM EXIMIUM ARMSTRONGIÆ.—*Gard. Chron.*, 1913, i. p. 350, fig. 150.

ODONTOGLOSSUM PESCATOREI LADY HOLFORD.—*Gard. Chron.*, 1913, i. p. 283, fig. 120.

ODONTOGLOSSUM PRINCESS MARY.—*Gard. Mag.*, 1913, p. 345, with fig.

ODONTOGLOSSUM THAIS.—*Gard. Mag.*, 1913, p. 336, with fig.

ODONTONIA LÆLIA SANDER.—*Gard. Chron.*, 1913, i. p. 349, fig. 149.

PHALÆNOPSIS SCHILLERIANA (specimen).—*Horticulture*, 1913, p. 426, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work.*]

R.C.K.—Cattleya intermedia, a South Brazilian species, readily distinguished from C. Harrisoniana by its narrower white sepals and petals, and the bright purple lip.

Dr. H. G.—Lycaste aromatica, Lindl.

E.R.—Odontoglossum Charlesworthii, a hybrid between O. triumphans and O. Harryanum. Probably it got among the O. crispum by accident, as you suggest.

Photographs received with thanks.—H.G.A.; W.B. & Sons; Sander & Sons; C. & Co.; Dr. H. G.; F.S.R.

F. W. T.—Please forward record of parentage, as otherwise it is difficult to fit these complex hybrids into their correct place.

Owing to the pressure on our space this month, some important Continental and other notes are unavoidably postponed, also the Orchid awards at the R.H.S. Chelsea Show.

THE ORCHID REVIEW.

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A BRITISH NATURAL HYBRID ORCHIS.

ORCHIS BRAUNII.

ORCHIS latifolia and O. maculata are now flowering profusely, and the question has again cropped up as to whether they are really distinct or only forms of one variable species. Mr. F. Escombe has sent to Kew a fine series of both, together with some perplexing intermediate forms, which were gathered in a marshy meadow at Shawford, near Winchester, and remarks that there seems to be a continuous gradation in size, colour, and markings between the two. He asks whether it is a case of fluctuating variability in a comprehensive species or hybridisation between two separate species? We believe it to be the latter. It was a similar intermediate form from the same district that was recorded in 1883 by Townsend, in his *Flora of Hampshire* (p. 341), under the name of O. latifolio-maculata, and this hybrid has since been recorded from several other British localities where the parent species grow intermixed, as Headington Wick Bog, Oxfordshire, in 1886 (*Druce, Fl. Oxford*, p. 294), Egg Buckland, Devonshire, in 1889 (Rolfe in *Gard. Chron.*, 1889, ii. p. 10), and Trewedna Valley, Cornwall, in 1909 (*Davey, Fl. Cornw.*, p. 425). Recently it has been sent from Gibbons Brook, East Kent, by Mr. John Cryer, of Shipley, Yorks, and we believe that other localities have been recorded. On the Continent it is known under the name of O. Braunii, having been described by Halacsy in 1881 (*Erst. Bot. Zeitschr.*, xxxi. p. 137) from specimens collected between Hainbach and Steinbach, Lower Austria, and since then it has been found in Germany, Switzerland, and France.

The parent species, in their typical forms, are quite distinct, and largely occupy different stations. O. latifolia usually occurs in bogs or wet marshy meadows, and has stout, fistular stems, rather broad, suberect green leaves, and large purple flowers with some purple spots on the lip, while O. maculata prefers drier heaths, meadows, and similar stations, and has more slender solid stems, narrower spotted leaves, the basal ones more spreading, and much smaller white or pinkish flowers, lined with purple on the more strongly three-lobed lip. The hybrid, as generally understood, may be described as intermediate, but has somewhat slender solid stems, spotted

leaves, and purple flowers with darker line on the lip. It is thus most like O. maculata in vegetative characters and O. latifolia in the flowers, but there are some perplexing variations, probably reversions, for the limits of hybridity are not known. The Devonshire hybrid is interesting in this connection, for in 1880 T. R. Archer Briggs recorded finding O. latifolia with spotted leaves at Egg Buckland, but remarked that the form with spotless leaves was far more common (*Fl. Devon.*, p. 324), and nine years later he sent examples to Kew from this locality as probably hybrids, found together with the two parents in rough pasture land.

On the Continent plants with spotted leaves have been figured as forms of O. latifolia, and the question arises whether the spots may not be due to hybridity. Townsend also mentions this spotted-leaved form, and remarks that the lip has nearly equal lobes, with spots forming continuous lines. The allied O. foliosa supplies a possibly parallel case. It is a native of Madeira, and has plain green leaves, but the late Mr. C. Wolley Dod, in a paper on "Spontaneous Hybrids among Hardy plants," remarks: "Orchis foliosa makes hybrids with O. maculata. I have for many years grown O. foliosa as a hardy plant. Some years ago I noticed spotted leaves among them, but now that I have picked out many of these plants I find plain leaves are as common in them as spotted. The flower spike is longer, the flower smaller, and the general character and habit partake of both parents" (*Gard. Chron.*, 1899, i. p. 179). The seeds germinate freely in suitable spots. We should like to see examples of this hybrid.

We should say that O. Braunii may be looked for wherever the two parents grow intermixed, and here also might be found other intermediate forms of quite doubtful identity, as the following considerations will show. It is now known that when a fertile hybrid is self-fertilised, or re-crossed with either parent, partial or even complete reversion sometimes takes place, and forms appear among the seedlings that would be referred to one or the other parent species if their origin were not known. Such forms are probably common in nature where species that will hybridise happen to grow intermixed, and this would account for the series of perplexing intermediate forms seen in the present case. In such localities hybridisation may have been going on for an indefinite number of generations, and thus obliterate the natural limits of the species. It is a significant fact that these intermediate forms do not occur where the species grow separately, though of course the species vary within their own limits.

It would be interesting if someone would make the cross, in the hope of reconstructing the hybrid, or self-fertilise a typical example of the wild hybrid, and let us see what reversion such a batch of seedlings would show. The chief difficulty would be to get the seedlings up, but our hybridists would be equal to the task if they would attempt it. R. A. ROLFE.

THE AMATEUR'S COLLECTION.

BY C. ALWYN HARRISON, F.R.H.S.

THE warm and sunny weather that we have lately been experiencing has had a beneficial effect upon the growth of the plants, enabling new bulbs to plump up and become well matured, and where this is the case satisfactory flowering can be confidently expected. Endeavour to keep the internal temperature of the house as near to 65° degrees as possible, this being best achieved by judicious damping and shading, with abundant ventilation.

Should really seasonable weather still continue, damping the floor, staging, and pots will usually be needed three to four times a day, the plants themselves receiving a gentle spray overhead in the late afternoon. Keep a strict watch for all insect pests, and sponge the leaves of all the Orchids at frequent intervals. Although abundance of fresh air is of the utmost importance for the successful development of cool Orchids, yet be careful never to give ventilation in such a manner that draughts are caused.

In specially constructed Orchid houses the bottom ventilators will be found to be placed under the staging, and on a level with the hot water pipes. In the majority of amateur's greenhouses, however, the ventilators are made to open level with the staging. Personally I would always advise the intending cultivator to have these altered if constructed on the latter plan, as better success with cool Orchids will be gained in houses with the bottom ventilators constructed under the staging.

At the recent Chelsea Show amateurs must have been much struck with the magnificent Odontoglossum hybrids to be seen in every group, and now that those of early raising are procurable at moderate cost, I would advise their cultivation in place of the old species, as they are freer flowering, and, being of stronger constitution, will better submit to indifferent treatment at the hands of a beginner.

It is still, in my opinion, too warm to attempt the repotting of any Orchids, though any plant intended for exhibition at the summer shows may receive a top-dressing of sphagnum moss, care being taken, however, not to remove sufficient of the old compost to disturb the roots.

Odontoglossum grande should by now have recovered from the effects of repotting, and will probably require a good dose of water daily, as it must be grown in a position where it can get much sun, and will consequently dry more quickly than other plants which are well shaded.

The present is a good time to increase the stock of any Odontoglossums possessed, by severing the rhizome connecting the pseudobulbs. A clean sharp cut must be made, leaving two bulbs to support the new lead. Do not remove the severed portion until a growth is seen to be forming, and it is by no means certain that every back bulb will start again into growth.

ORCHIDS: THEIR POPULARITY AND CULTURE.

(*Concluded from page* 111).

ANOTHER important requisite in the culture of all Orchids is full and free ventilation, not only during the daytime but also by night, when it can be managed without creating a draught. It needs only to be considered that the greater portion of Orchids are epiphytes, growing, in their natural conditions, on the branches of trees and, in many cases, isolated positions on hill sides, to convince anyone that they are subject, in their native home, to a circulation of air, therefore under cultivation they should be supplied with abundance of this very important element, in fact, it is absolutely necessary, for as it is with light so it is with air. If there is any shortage in the supply of either of these factors the whole substance of the plants, leaves, bulbs, and roots, are deficient in the solidity indispensable to keep up a healthy existence. Judicious use, therefore, of the ventilators of the houses is always important at all seasons of the year. To freely ventilate the houses on hot, sunny days, and to admit air only by a chink on dull days and by night is, to my mind, a most absurd practice. This close-shutting system, especially at night, with a view to keeping up a desired temperature, produces on plant life an amount of mischief difficult to calculate. I never could see the reason why ventilation, if so beneficial during the daytime, should not be equally so during the night. Fresh air all night, with reasonable temperature, must be more conducive to health and vigour than anything approaching a stuffy atmosphere.

The proper atmosphere of an Orchid house is one in which the air is constantly changing, keeping the temperature in accordance with the occupants of the house, and sufficient moisture in the air to create a buoyant feeling, so heat, air, and moisture, to use a familiar expression, go hand in hand. Whenever the temperature permits of free ventilation the atmosphere requires to be replenished in a like ratio. A constantly changing and well-balanced temperature is one of the most important points in the culture of these beautiful plants.

Speaking of moisture brings me to a very important matter, and that is the watering of Orchids. There is no more important operation connected with their culture, and none oftener mismanaged. Who will say this does not apply to the cultivation of all plants in pots under glass? Even the most experienced practitioner needs all his wits about him if the work is to be done with despatch. In watering a mixed house of Orchids this is especially the case, even when all are in full growth, allowance always being necessary for the condition and quantity of compost about the roots, and the comparative vigour of the plants. The majority of the terrestrial kinds require proportionately more water at the roots than the epiphytal

kinds, as they do not possess in a like degree the power of drawing supplies from the atmosphere. This is an interesting faculty which is being considered more and more by growers of the present century. The ability of epiphytal kinds to take up little or much moisture is mainly determined by the amount of air they receive, and also by the light and description of the house in which they are grown. Light and air naturally enable any plant to take up more moisture by means of its roots, and these organs of nutrition must be in a suitable medium. Any great excess of moisture will cause young roots in course of formation to die prematurely, and often times result in the death of the older ones. Rain water is preferable for all plants as being purest and most natural, and Orchids should receive no other, especially epiphytes, for in their natural state they can never experience the effect of any other kind.

With regard to the roots of Orchids, and compost for same, most Orchids, when growing naturally, have their roots in a great measure exposed to the air on trees and rocks to which they cling, with the head of the plants extending to the light, and generally where decomposed vegetable matter has accumulated within reach of their roots. It is obvious, therefore, that if the roots of such epiphytes are potted in a compost which is at all adhesive, they will very soon perish; at the same time, loosely-potted plants do not grow so strongly as when a more or less substantial material is employed, and firmer potting practised. English peat of the best quality for epiphytal Orchids is now almost unobtainable in large quantities. From the early 'nineties there has been an increasing scarcity of this material, but it is only about ten years since osmunda fibre from America and polypodium fibre from the Continent have been proved to be satisfactory substitutes. These materials have gradually found favour, and are now extensively used as a rooting medium for Orchids. The early experiments, which led up to its extensive use, were carried out at Westonbirt. Other necessary materials employed in the potting of Orchids are good fibrous peat, fresh sphagnum moss, clean crocks, charcoal, and coarse silver sand. Some good turfy loam of a not too sandy description is required for strong-growing plants such as Cypripediums, Calanthes, Cymbidiums, Phaius, Pleiones, and other kinds.

The process of potting Orchids is not difficult, and cultivators should make a golden rule of never to pot a plant until the roots show signs of activity. When repotting is done just before new roots actually do appear, the compost is fresh and sweet for them, and they seldom fail to take advantage of it. There is no special season for potting Orchids, but the observant cultivator watches his plants, affording them fresh food when they need it. Teak-wood baskets, perforated pots and pans, and common garden pots of the usual pattern are all used as receptacles. Of the three I

prefer the latter for the majority of Orchids, and shallow teak-wood baskets for Phalænopsis and small-growing epiphytes. One main point is to secure perfect drainage—a point some are apt to overlook, but the fact is, the more water a plant requires the more perfect drainage should be given, otherwise the compost soon becomes stagnant and sour. Over-potting should at all times be avoided, and the rooting material employed should be worked in amongst the roots, pressing it firmly about them, for, as I have already remarked, loosely-potted Orchids never thrive well, and loose compost retains too much water. Experience teaches me that it is not the quantity of water afforded the plant which influences it for good or ill, but the amount actually absorbed and retained by the compost, and that the healthiest Orchids are those that require water most often; hence the compost should be firm, and on a well-drained bottom.

Another matter in connection with the cultivation of Orchids, and one in which some growers, beginners especially, are liable to make mistakes is the treatment during the resting period. This term "rest" is, I fear, often misunderstood. It does not imply a periodical shrivelling of the plant by withholding water and lowering the temperature, but more of what I may term a compromise as regards temperature and atmospheric condition. The resting period of most Orchids takes place more or less during the winter, a time of year when the temperature is lower and evaporation is not so rapid, and it is then that the plants require less atmospheric moisture and water at the roots. It is principally on this point that a considerable amount of knowledge and experience is required to adapt the varying conditions so as to meet the needs of the different plants. For example, the distichous-leaved section require more frequent watering during their inactive period than any pseudobulbous kinds, Vandas, Phalænopsis, and similar kinds requiring sufficient moisture in the rooting material to keep the foliage plump and firm.

Orchids which are over-dried during winter will often lose many of their leaves when the sap begins to circulate freely in the spring. On the other hand, too much moisture when the roots are inactive leads to damping, spot, and other attendant evils. The impression existing in the minds of some growers that a severe drying of Cattleyas, Lælias, Dendrobiums, and other pseudobulbous kinds is necessary to induce them to flower is a great mistake. Those Orchids that require keeping dry at the root during their season of rest benefit to an extent dependent on the conditions under which they have been grown. If cultivated on common-sense principles, with as much light and air as they require, the leaves and pseudobulbs are solid and stout in texture, especially those which are evergreen, the plants are, materially, better able to bear a lengthened period of drought without shrivelling to the extent which proves injurious to the foliage. While there

is no royal road to Orchid culture other than the long and certain one of observation and practical experience, Orchids can be grown, and successfully, by the born gardener who is a good cultivator of ordinary greenhouse plants, if he takes to them and really studies their wants, and, since so many of the most showy and useful kinds are sold so cheaply, a large measure of quiet enjoyment can be derived from these interesting plants without extravagant expenditure.

In conclusion I will remark that the one matter which has, more than any other, revolutionised Orchid culture is the art of hybridising and raising seedling Orchids. The important part of Orchidology has created an entirely new interest, and fanciers are no longer dependent on importations of the plants from foreign countries. At the present day seedling Orchids are raised freely, and these home-raised plants more often than not are far more easily cultivated than imported plants, naturally so because they are acclimatised from birth. This combination of circumstances could scarcely fail to make for advancement, and it is to these, together with the reduction in price of Orchids, and last, but not least, to the intelligence and sagacity of our practical growers, on whom laid, in the past, the responsibility of cultivating rare and costly collections, that the wonderful progress is due, and which has exploded for ever the idea that England is, as Sir Joseph Hooker once observed, the grave of tropical Orchids.

A very interesting discussion followed, Mr. Challis, gardener to the Earl of Pembroke, in the course of his remarks said his experience had been that it was better to have the house dry at times. During the last twenty years he had been trying to see what dryness Orchids would bear, and as far as Cattleyas were concerned he found that unless they were in an extremely sunny window the house was better without moisture than in a saturated house. Mr. Challis also raised the question of manures, especially pointing out that Orchids in their wild state received a certain amount of ammonia and carbonic acid from the air.

Mr. Alexander said he had experimented on Vandas with various manures, but he found that those which were without manure did much better than those which had been manured. Fresh air and light was the very life of everything on this earth.

Mr. Tauser regretted that Bath at the present time had gone down in Orchid culture. He thought all employers should keep just a few in order that when their younger gardeners left to go elsewhere, where there might be a large collection, they would not go without experience.

Mr. Alexander, who had brought with him a choice collection of blooms, then gave an interesting history of their parentage, and one which he showed, a hybrid between Cymbidium Lowianum and C. insigne, he

mentioned had been in bloom since the first week in December, and he would guarantee would last in water for six weeks. By the kindness of Sir George Holford, Mr. Alexander also brought about thirty paintings of Orchids by Miss Waters Anson, who is a well-known painter of flowers, which were very much admired. A hearty Vote of Thanks was accorded to Mr. Alexander, who, it was pointed out, was a Bathonian by birth.

ODONTOGLOSSUM SEEDLINGS.

PHOTOGRAPHS of two choice seedling Odontoglossums have been sent to us from the collection of F. S. Roberts, Esq., Bannerfield, Selkirk, together

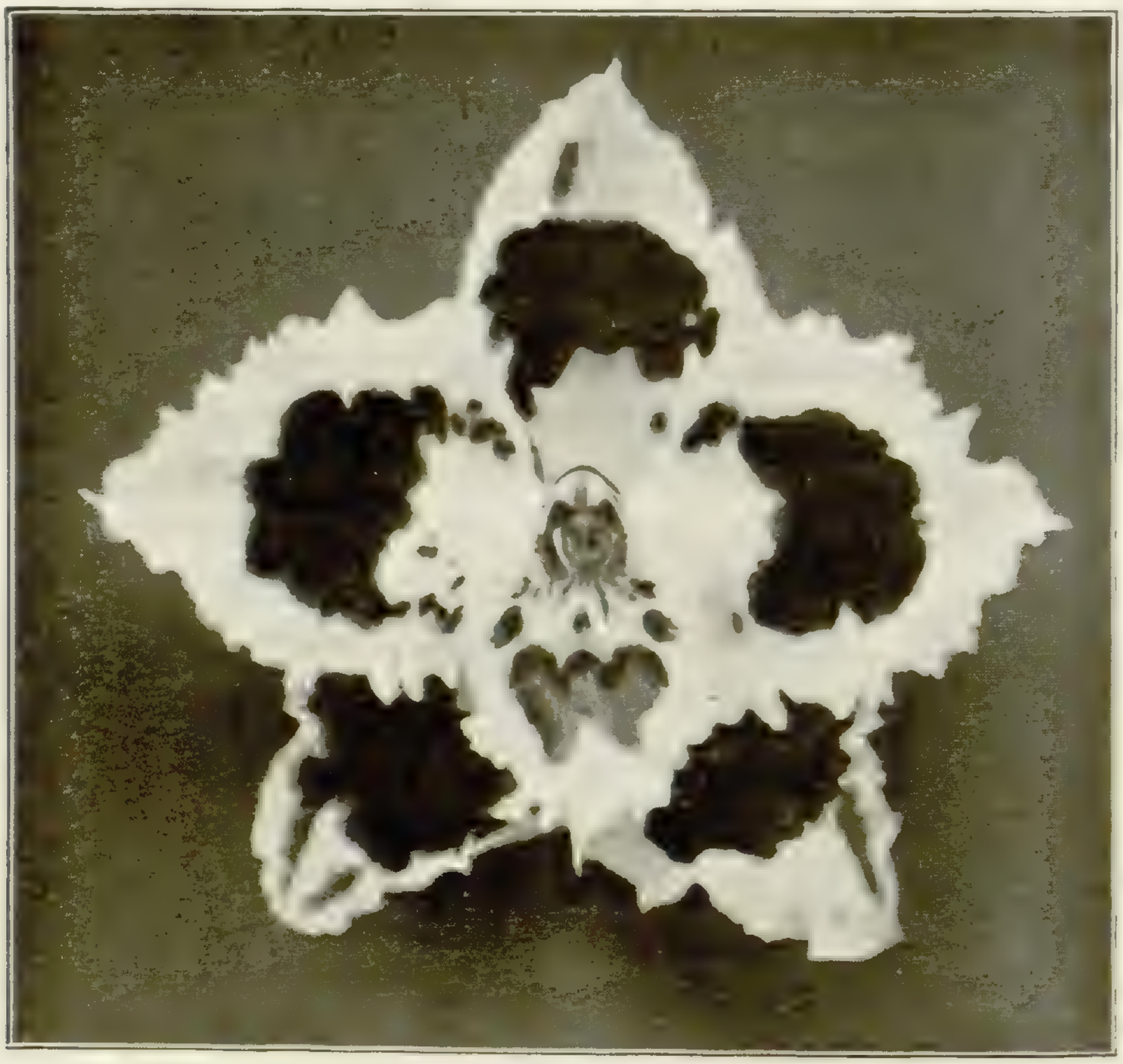

Fig. 36. ODONTOGLOSSUM CRISPUM VAR. FLETCHERI.

with a flower of each, and we have much pleasure in figuring them. Mr. Roberts writes: "Quite a number of fine varieties have bloomed from each batch of seedlings, but my gardener, Mr. Clark, and I are agreed that, so far, these two are the best. In each case the seed was sown in the summer of 1908, and both plants are flowering from the fourth bulb. As the plants are small the spikes were disbudded, and only two blooms were taken." Figure 36 represents a seedling obtained from O. crispum apiculatum fertilised with the pollen of O. c. Lucianii, and, as will be seen from the figure, the seedling is of excellent shape, with broad toothed segments, and the ground colour white, with one large round purple blotch on each. It

is a very charming form, and we suggest for it the name of O. crispum var. Fletcheri. Figure 37 shows a seedling raised from O. crispum Jeanette crossed with the pollen of O. armainvillierense (ardentissimum). This also

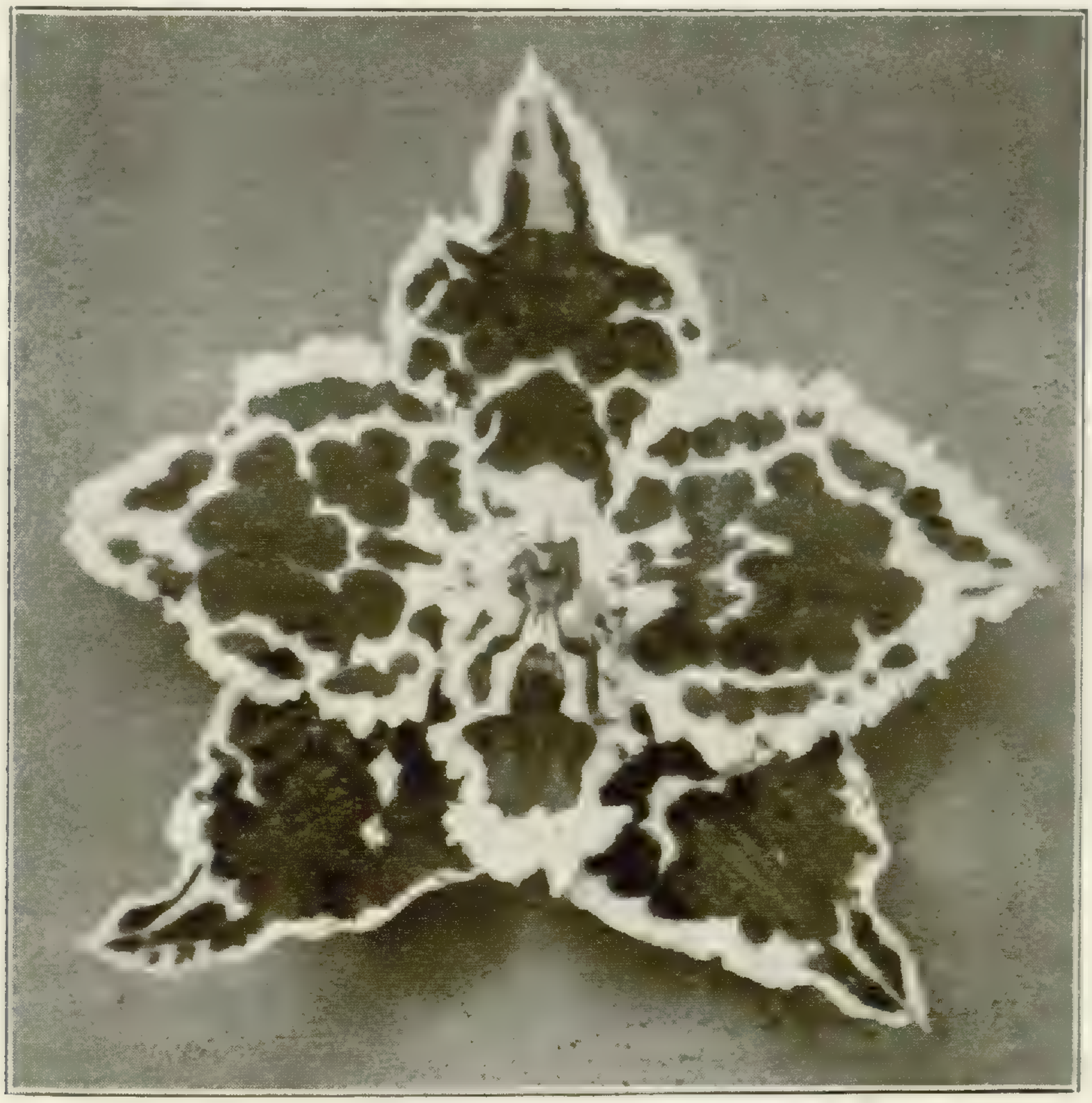

Fig. 37. ODONTOGLOSSUM EXIMIUM VAR. CLARKII.

has an excellent shape, and broad segments, with a white ground colour, slightly tinged with rose, and numerous large claret-coloured blotches on each, while the lip has one large blotch in front of the crest, and a few smaller spots at the base. This we propose to call O. eximium var. Clarkii. Both are charming acquisitions.

CONTINUOUS ORIGIN OF UNIT-CHARACTERS.—The brilliant progress in heredity of the last nine years, beginning in 1903 with the rediscovery of Mendel's law, should not blind us to the four broad inductions from paleontology, that transformation is a matter of thousands or hundreds of thousands of years, that to the living observer all living things may be delusively stationary, that invisible tides of genetic change may be setting in one direction or another observable only over very long periods of time, that discontinuous mutations or saltations may be mere ripples on the surface of these tides.—Dr. H. F. OSBORN

ORCHIDS FOR CUT BLOOM.

THE collection of Orchids formed by Messrs. Swan & Price, St. Albans, is mainly for supplying the cut flower trade, and on calling there the other day we found many interesting features. On entering the first house a fine batch of Dendrobium Phalænopsis at once arrested our attention, with another large consignment of the same species just unpacked. Many plants of D. formosum and Dalhou-nobile weré also pictures of health.

In the next house were many fine plants of Cypripedium bellatulum and niveum, all in robust condition, and comprising such excellent varieties of the former as Queen of Spain, Oakdene var. and album. Many white Cattleyas were also pointed out, mostly not in flower, but a nice C. Mendelii was just opening its flowers, whilst two grand specimens of C. Fabia' × Læliocattleya callistoglossa were just starting into growth.

The next structure was entirely devoted to Cattleyas and their allies. A good batch of imported C. Mossiæ and Lælia purpurata were re-establishing themselves nicely, whilst in bloom were C. Schrœderæ with white sepals and petals, Brassocattleya Maronii and Thorntonii, Brasso-lælia Helen and Veitchii.

Two following houses were filled with the choicest of Cypripedium hybrids, from which a grand display of bloom is expected this winter, one structure alone being devoted to C. insigne Sanderæ.

The corridor connecting these houses contains a large batch of Cymbidiums, white Lælia anceps in great variety, and about three hundred plants of a very good type of Dendrobium Wardianum.

We next came to two low-built structures, in the first of which an exceptionally fine batch of unflowered Miltonia vexillaria were growing finely. Some idea can be conveyed of the robustness of these Orchids when it is remarked that the majority carried three spikes to one bulb, and in one case I observed five. A very good type of Odontoglossum crispum is possessed, whilst the only known example of O. c. Ethel Rogerson had large, well-shaped flowers, blotched with vivid claret. A fine plant of Oncidium crispum was also in bloom.

The last house contained large batches of Odontoglossum seedlings, including many O. Edwardii crosses, and Odontiodas of the last named, O. Bradshawiæ, a good O. Charlesworthii and O. beechensis (O. Rolfeæ × C. Nœtzliana) making a good display.

The collection is in thriving condition, and reflects the greatest credit upon Mr. W. C. Price, who has the entire charge of the Orchids, and who, it will be remembered, was formerly Orchid grower to the late Mr. E. J. Rogerson, and Calendar writer to the *Orchid Review*.

C. ALWYN HARRISON.

LÆLIA PURPURATA AS A PARENT.

THE appearance of a hybrid between Lælia purpurata and the remarkable Cattleya citrina, under the name of Læliocattleya Freak (as recorded at page 221) calls attention to the possibilities and limitations of the former as a parent. No other species has given such a series of magnificent garden hybrids as has this fine Lælia, which the late Mr. B. S. Williams once remarked had often been designated the "King of Orchids," on account of its merits as a free-growing and showy exhibition plant. Its qualities remain, and it to-day the species is less popular than formerly the eclipse is largely due to the brilliancy of its own children. Look at the hybrids comprised under the names of Læliocattleya Canhamiana, Aphrodite, Dominiana, and Fascinator, to mention only a few of those obtained by crossing L. purpurata with the Cattleyas of the labiata group. And the list might be extended, for it has been crossed with every member of the labiata group, and the changes are now being rung with the secondary hybrids, which promise some further additions.

In the *Orchid Stud-Book* we find no fewer than forty-seven hybrids for which L. purpurata is partly responsible, namely, twenty-four Cattleyas, thirteen Lælias, five Læliocattleyas, two Epidendrums, and one Brassocattleya, with Brassavola Digbyana and Sophronitis grandiflora, and the list has since been extended, chiefly among secondary hybrids.

The series commenced with Læliocattleya Dominiana, which flowered for the first time in 1878, though at that time the Lælia purpurata parentage was not known. In fact the second parent was said to be "some Lælia, probably elegans," which reminds us that the plant so long known as Lælia elegans is itself a natural hybrid between L. purpurata and Cattleya Leopoldii, though it was long supposed to be a wild species; in fact it originally appeared and was described under the name of Cattleya elegans before the existence of Lælia purpurata was known. It is now called Læliocattleya elegans. The other natural hybrid of L. purpurata is L.-c. Schilleriana, which was originally described under the name of Lælia Schilleriana, and afterwards confused for a long time with L. elegans. The point was ultimately cleared up, and since then the parentage of both natural hybrids has been proved experimentally.

The hybrids of L. purpurata with the long-bulbed Cattleyas are less showy, chiefly due to the smaller flowers and less brilliant colours of the latter, and partly also to the fact that the entire lip of the one does not combine well with the three-lobed lip of the other. L.-c. elegans and Schilleriana, however, belong to this group, and were formerly extremely popular. Crosses with other Lælias are not to be compared with the Læliocattleyas in point of beauty, though with the L. cinnabarina group L.

purpurata has yielded two or three free-flowering hybrids of novel colour. Sophrolælia heatonensis, the hybrid with Sophronitis grandiflora, is a charming little plant, but the combinations with Epidendrum are not of much account, the small flowers and different shape of the latter, and in the case of E. radicans the straggling habit, not forming a good combination. The hybrid with Brassavola Digbyana is more promising, while Brassocatlælia Veitchii, in which the characters of L. purpurata and Brassocattleya Veitchii are combined, is remarkably handsome. It is perhaps here and among the secondary hybrids of the Cattleya labiata group that further developments may be expected.

Læliocattleya Freak is remarkable for having almost the habit of Cattleya citrina, with greenish yellow sepals and petals and a whitish lip striped with purple. It might be interesting to re-cross it with the Cattleya.

ORCHIDS AT BRUSSELS.

M. FIRMIN LAMBEAU'S COLLECTION.

ORCHID culture in Belgium, as elsewhere, is advancing with rapid strides, and the magnificent group for which M. Firmin Lambeau was awarded the King's prize at the recent Ghent Quinquennial Exhibition will long be remembered. A few days later we had the pleasure of seeing the collection itself, and now propose to describe a few of its leading features, though the difficulty of giving an adequate account of such a fine collection in the space at disposal necessitates the suppression of many interesting details. Like many others, the collection had a small beginning. M. Lambeau began to grow Orchids in 1897, a few plants then finding a home among miscellaneous greenhouse subjects. The arrangement was temporary, and a year later a Cool house was built for Odontoglossums, which was followed by another for Cattleyas and others requiring a warmer climate. The results were favourable, and the collection grew until eighteen houses of various kinds were successively built. M. Lambeau then moved from Chateau Precklinden to his present residence, Villa Vogelsang, near Brussels, where he has built an entirely new set of houses on the latest principles.

These houses are ten in number, and their dimensions twenty-two metres long by three and a-quarter wide. They are disposed right and left of a centre corridor some six metres wide, the total area being about 1000 square metres. The houses are arranged with a central path and side stages, and ventilated by a system of gearing fixed in the central corridor. The heating is by means of two central boilers, each of which can be isolated by means of valves in case of accident. The potting shed and general workroom is situated at the end of the corridor, so that everything can be done without taking the plants outside.

We now come to the plants themselves, which are estimated to exceed ten thousand in number, with a large number of seedlings not yet potted off, in fact an extensive series of hybridisation experiments is in progress, a few of which we shall be able to mention. Passing from the Corridor into the first Cool house we noticed about twenty Odontiodas in flower, together with the Cochlioda Nœtzliana parent, among them being the pretty little O. Graireana and O. loochristiensis (C. Nœtzliana × O. gloriosum), also a few Odontoglossum Clytie (Edwardii × Pescatorei), O. Adrianæand others, with a fine lot of seedlings in various stages, the tiny pots of the smaller ones being plunged about thirty together in pans of moss to prevent drying of the compost. Among the larger ones a particularly interesting batch from O. Edwardii × Miltonia vexillaria was pointed out, and the question as to what they would be like can now be answered, for this hybrid was described at page 177 under the name of Odontonia brugensis. Lath roller-blinds are used as shading, with an additional thin coat of whitening for the summer months. We noted also a layer of tobacco stalks laid on the hot-water pipes, which is said to be a very effective check to thrip.

The next house contained a very fine lot of Odontoglossums in spike and flower, the latter including about thirty good spotted forms of O. crispum, a fine O. amabile with clusters of purple spots near the base, and many other hybrids, while the magnificent Odontioda Coronation carried a spike of fifteen flowers. Here were many seedlings, and all plants were in robust health. This house was divided, and in the second half were a lot of typical O. crispum in bloom, with examples of O. Pescatorei, four good plants of O. pulchellum, a few O. Rossii, O. Thompsonianum, and a few Masdevallias, including M. coccinea, M. ephippium, and a good plant of M. Arminii with fourteen flowers. We noted a pan used by M. Lambeau which gives excellent results. It contains a central pedestal on which the plant stands, and is thus elevated above a small surrounding pool of water which helps to keep the plant cool and moist. The pedestal has a hole through the centre, so does not obstruct the drainage.

The next house contained many Miltonias in excellent health, including M. vexillaria with a nine-flowered spike, the beautiful varieties G. D. Owen, Queen Alexandra and chelseiensis, M. Bleuana, and a self-fertilised form of the same, the first of a batch to flower. It is most like M. vexillaria, with a rosy basal blotch to the petals, and is very promising. Here also was M. Bleuana × M. vexillaria G. D. Owen, the base of the lip being yellow and brown without any crimson mask. We further noted Odontonia Firminii, from M. vexillaria and an unspotted O. crispum, some large unflowered seedlings from O. Pescatorei × M. vexillaria, Cochlioda Nœtzliana × M. Warscewiczii, in spike, young seedlings of Odontioda Charlesworthii × M.

vexillaria, a number of young Cymbidiums, some good Oncidium Marshallianum in bloom, with Lycaste cochleata, Maxillaria Sanderiana, Sobralia macrantha alba, Saccolabium curvifolium, and others.

Passing into a Cattleya house, where the plants were in robust health, we found examples of C. Mossiæ, C. Schilleriana, and a few others in bloom, and the beautiful C. Warneri alba in sheath was pointed out, also a batch of seedlings from C. Skinneri × Brassavola Digbyana. Batches of Lælia anceps and Cypripedium Rolfei were in thriving condition, also three plants of Vanda Marguerite Maron, while Dendrobium aggregatum and D. nobile were in bloom. The Cattleyas are grown in osmunda fibre.

The next house contains a lot of Cattleyas in all stages, and we noticed seed pods on C. Schilleriana and various others, also two Phalænopsis Lueddemanniana in bloom, one of them with six spikes, with Catasetum macrocarpum and the handsome C. splendens var. imperiale, the latter the type plant. Here was also a good batch of Vanda cœrulea.

The seedling house proved extremely interesting, and contained thousands of plants in various stages, from the tiniest germinating seedlings, in fact hybridising is practised on a very extensive scale. The seedlings are grown in the usual closed frames, and are sown on canvas and then pricked off and grown on in the usual way. We were much struck with the freedom with which some of the seeds germinate, but M. Lambeau remarked that this applies chiefly to the primary hybrids, for some of the secondary crosses have proved much more difficult. The seedlings generally were in thriving condition, and contained many whites, but we cannot ennumerate them. They are carefully recorded by a system of numbers, and already over a thousand seedlings of Cattleya, Læliocattleya and Brassocattleya, have flowered, while a large number are approaching that condition. M. Lambeau will have abundant material to select from.

We now passed through four other houses largely devoted to the Cattleya group, and we noted a lot of good C. Schrœderæ, C. Mendelii × Lælia cinnabrosa, with acuminate segments and the colour of the former, C. Skinneri × L. tenebrosa, with two spikes of purple flowers, Læliocattleya Hyeana, two L.-c. Doris with deep orange flowers, L.-c. Myra with white sepals and petals, Brassocattleya Maronii, Epidendrum Parkinsonianum, a few Phalænopsis amabilis, Renanthera Imschootiana, and others. A lot of white Cattleyas not in bloom were pointed out, and a capsule of C. Mossiæ Wageneri × C. Warscewiczii alba, a very promising cross. There are others, for M. Lambeau purchased the plant of C. Warscewiczii alba and used it on all the whiter forms that were available. The beautiful white form of C. Adonis (C. M. Wageneri × Warscewiczii Frau Melanie Beyrodt), was also pointed out, and numerous batches of unflowered seedlings.

The Cypripedium house contains a fine collection of choice varieties, the majority not now in bloom, but there were many C. Lawrenceanum, good examples of C. Helvetia, bellatulum, Helen, glaucophyllum, and several hybrids of the latter, which prove rather disappointing, being dingy in colour and inferior to their parent in point of beauty. The plants are grown mostly in yellow loam, and are in excellent health. M. Lambeau pointed out quantities of seedlings, and remarked that here they germinate with the greatest freedom, while if sown on fibre they are washed down among the compost and lost. Miltonia Roezlii grows well here, and was in bloom.

Passing along the Corridor, where several Oncidium sphacelatum were in bloom, with Angræcum sesquipedale, Cattleya Skinneri, and a few others, we came to the large workroom, where M. Lambeau showed us a very fine series of paintings, among which we noted Miltonia Bleuana var. Peetersiæ with a deep rosy blotch on the sepals and petals and a pale margin, M. vexillaria × var. Leopoldii, a large rosy flower with a crimson mask on the lip, Catasetum splendens var. imperiale, Odontonia Firminii, Læliocattleya Firminii, Odontoglossum crispum Souverin, white with red spots round the lip, Odontioda Coronation and Vogelsang, both very handsome, Cattleya Trianæ cœrulea, with a second painting because the flowers had altered so much when the plant became strong, the handsome C. Enid var. Firmin Lambeau, C. Warscewiczii alba, C. Hardyana alba, and another very charming ally, from C. Mantinii (Bowringiana × Dowiana aurea) recrossed with C. D. aurea, giving a flower like the latter in shape, but rather smaller, and with white sepals and petals and a very rich crimson lip. It is another case of white coming from the union of yellow and purple.

We congratulate M. Lambeau, and his able gardener, M. de Munter, on their success, for the collection is indeed in excellent condition, and the seedlings are so numerous that the building of additional houses is contemplated, and for this the necessary land is available. We shall hope to record some of the results from time to time.

EPIDENDRUM AMBIGUUM.—A plant of this graceful and pretty Central American species is now flowering at Kew, having been obtained from Messrs. Sander & Sons, St. Albans, under the name of E. Candollei. It originally flowered in the collection of S. Rucker, Esq., of Wandsworth, in July, 1846, and was sent to Dr. Lindley for determination, and figured in the *Botanical Register* (1847, t. 53), under the name of E. elatum, Batem. When Lindley came to revise the genus the mistake was detected, and the species was then described under the name of E. ambiguum, *Lindl.* (*Fol. Orch.*, Epidendr., p. 18), with the habitat "Wild in Guatemala." The flowers were described as pale yellowish green, very sweet scented, and the lip

straw-colour, spotted and streaked with rose. It was placed next to E. aromaticum Batem., to which Lindley well-pointed out it was more nearly allied. It may have been from one of G. Ure Skinner's importations. Since then it seems to have been little heard of. The Kew plant bears a graceful panicle, over a foot high, with seven branches and about eighty flowers.

R. A. R.

ODONTOGLOSSUM EMPRESS OF INDIA.

THE annexed figure represents the very beautiful Odontoglossum Empress of India (parentage unrecorded), which was exhibited by Messrs.

Fig. 38. ODONTOGLOSSUM EMPRESS OF INDIA.

Charlesworth & Co., Haywards Heath, at the present Show of the R.H.S. at Chelsea. It bore a spike of nineteen flowers, and made a beautiful picture. The shape of the flowers is well shown in the figure, and the colour may be described as deep blush, with chocolate-coloured markings, and the blotches on the lip decidedly darker in colour. It is a very charming acquisition, and apparently shows the influence of O. crispum and some O. Harryanum hybrid.

SOCIETIES.

ROYAL HORTICULTURAL.

THE following list of awards made at the R.H.S. Spring Show, held at the Royal Hospital, Chelsea, on May 20th, 21st, and 22nd, were crowded out of our last issue.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), and Messrs. J. O'Brien (hon. sec.), H. G. Alexander, F. Sander, J. E. Shill, J. Cypher, H. J. Chapman, Gurney Wilson, F. M. Ogilvie, R. G. Thwaites, J. S. Moss, W. H. Hatcher, S. Flory, Sir Jeremiah Colman, Stuart Low,

Fig. 39.—CATTLEYA LAWRENCEANA MARY-REGINA.

W. Cobb, A. Dye, W. P. Bound, J. Wilson Potter, C. J. Lucas, R. Brooman White, W. H. White, W. Bolton, E. Ashworth, F. J. Hanbury, and R. A. Rolfe.

The special judges for Orchids, including the Davidson Cup, were: W. Bolton, de Barri Crawshay, and J. Gurney Fowler.

THE DAVIDSON CUP.

The Davidson Cup for the best Cattleya in the Show, not a hybrid, was awarded to Messrs. Charlesworth & Co., Haywards Heath, for the beautiful Cattleya Lawrenceana Mary-Regina, bearing two spikes of flowers, which were more distinctly blush in colour than when previously exhibited.

FIRST-CLASS CERTIFICATES.

CATTLEYA EMPRESS FREDERICK VAR. ALBA (Dowiana aurea × Mossiæ Reineckeana).—A beautiful form, with cream white sepals and petals, and a deep yellow lip, with pale margin and some crimson lines at the base. Exhibited by Messrs. Mansell & Hatcher, Rawdon, E. Yorks.

LÆLIOCATTLEYA BOYLEI GATTON VAR. (L. anceps Stella × C. Trianæ).—A beautiful large and blush white variety, with the disc of the lip yellow. Exhibited by Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier).

LÆLIOCATTLEYA BRITANNIA WESTONBIRT VAR. (L. Canhamiana × C. Warscewiczii).—A very large and handsome form, having rosy lilac sepals and petals, and an intense purple-crimson lip, with yellow in the throat. The plant bore two spikes, of three and four flowers. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander).

LÆLIOCATTLEYA SYLVIA PRINCESS VICTORIA LOUISE (Ascania × Phœbe).—A very beautiful form, bearing two spikes of deep yellow flowers, with the front of the lip crimson, and some veining in the throat. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

MILTONIA CHARLESWORTHII (Hyeana × vexillaria memoria G. D. Owen).—A large and beautiful deep rose-pink form, with a crimson mask at the base of the lip. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA CHANTECLEER ORCHIDHURST VAR. (C. Nœtzliana × Odontioda Cooksoniæ).—A large and very dark scarlet form bearing a very fine inflorescence. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM OTHMARSCHEN (parentage unrecorded).—A very large and handsome form, approaching O. mirum, and having broad sepals and well-toothed petals, with solid claret blotches on a white ground. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

ODONTOGLOSSUM QUEEN OF GATTON (triumphans × percultum).—A very fine form, bearing a spike of fifteen deep yellow flowers, heavily blotched with red-brown. Exhibited by Sir Jeremiah Colman, Bart.

AWARDS OF MERIT.

BRASSOCATTLEYA VILMORINIANA VAR. ETNA (C. Mossiæ × B.-c. Leemanniæ).—A very large and handsome form, with bright rose-coloured sepals and petals, and a broad, well-fringed, and richly-coloured lip, with a yellow throat and some dark lines. Exhibited by Messrs. Sander & Sons.

BRASSOCATLÆLIA EXCELSIOR (L.-c. George Woodhams × B. Digbyana).—A large and richly-coloured hybrid, having rosy purple sepals and petals, and a rich rose-purple fringed lip, with some dark veining in the yellow throat. Exhibited by Messrs. Armstrong & Brown.

CATTLEYA MENDELII MAY QUEEN.—A beautiful white form, with the front of the lip rich purple, and the throat yellow. Exhibited by Messrs. J. & A. McBean, Cooksbridge.

CYMBIDIUM GOTTIANUM SUPERBUM (eburneum × insigne).—A beautiful blush white form, with some rosy spots on the lip. Exhibited by Messrs. J. & A. McBean.

LÆLIOCATTLEYA APHRODITE SPLENDENS.—A large and beautiful form, with blush white sepals and petals, and the lip intense purple-crimson, with a yellow throat. Exhibited by Messrs. Armstrong & Brown.

LÆLIOCATTLEYA GANYMEDE HOLFORD'S VAR. (L. Latona × C. Schrœderæ).—A handsome form, bearing spikes of six and eight flowers, with copper yellow sepals and petals, and a rich crimson front lobe to the lip. Exhibited by Lt.-Col. Sir G. L. Holford.

ODONTIODA CHARLESWORTHII PERFECTION (C. Nœtzliana × O. Harryanum).—A very fine deep crimson form, with a broad, light red lip. Exhibited by Messrs. J. & A. McBean.

ODONTIODA CHELSEIENSIS VAR. ST. FUSCIEN (C. vulcanica × O. crispum).—A large and handsome variety, bearing a fine spike of over twenty rosy lilac flowers. Exhibited by M. Henri Graire, Amiens, France.

ODONTOGLOSSUM GEORGIUS-REX (Rolfeæ × ?).—A very large and handsome hybrid, which was figured at page 174 of our last issue. The flowers are heavily blotched with claret-purple on a white ground, slightly suffused with crimson and the lip very broad. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM EXIMIUM ARMSTRONGIÆ (armainvillierense × crispum var.).—A handsome form, bearing a spike of nine violet-purple flowers, with very broad white margin to the segments. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM ILLUSTRISSIMUM WESTONBIRT VAR. (Lambeauianum × armainvillierense).—A large and handsome form, having rosy claret flowers, the segments tipped with blush white, and the lip white with dark base. Exhibited by Lt.-Col. Sir G. L. Holford.

ODONTONIA LÆLIA SANDER (M. Warscewiczii × O. amabile).—A handsome hybrid, most like an enlarged edition of the former parent, and having the sepals and petals heavily blotched with red-purple, and the broadly expanded lip white in front. Exhibited by Messrs. Sander & Sons.

ONCIDIUM MCBEANIANUM (macranthum × superbiens).—A handsome hybrid, most resembling the former, and bearing a spike of numerous flowers, with olive brown sepals, and the petals light yellow barred with brown. Exhibited by Messrs. J. & A. McBean.

ONCIDIODA COOKSONIÆ ILLUSTRIS (C. Nœtzliana × O. macranthum).—A very handsome form, having the flowers of a distinct orange-scarlet shade. Exhibited by Messrs. Sander & Sons.

CULTURAL COMMENDATIONS.

CATTLEYA MOSSIÆ MAHOMET.—To Mr. H. G. Alexander, Orchid

grower to Lt.-Col. Sir G. L. Holford, for a finely-grown specimen, bearing three spikes, the two best each with six richly-coloured flowers.

MILTONIA VEXILLARIA SNOWFLAKE.—To Mr. H. G. Alexander, for a noble specimen, bearing sixteen spikes and an aggregate of eighty-five flowers.

MILTONIA VEXILLARIA VIRGINALE.—To Mr. H. G. Alexander, for a beautiful specimen bearing 125 flowers, with rosy sepals and petals and a white lip.

SOBRALIA MACRANTHA ALBA.—To Mr. J. Davis, gr. to J. Gurney Fowler, Esq., for a noble specimen bearing about three dozen flowers and buds.

The Council has awarded to Sir Jeremiah Colman, Bart., a Silver-gilt Cup, in place of a Silver Cup, for his fine group of Orchids.

At the meeting held on June 3rd there was a fine display of Orchids, and the awards consisted of one Gold and eight other medals, three Awards of Merit, two Cultural Commendations, and one Certificate of Appreciation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), J. S. Moss, J. Wilson Potter, Gurney Wilson, R. A. Rolfe, F. Sander, Stuart Low, F. M. Ogilvie, J. Charlesworth, J. Cypher, W. H. Hatcher, G. Hunter, W. H. White, S. Flory, W. Bolton, R. Brooman White, de Barri Crawshay, T. Armstrong, Arthur Dye, C. H. Curtis, J. E. Shill, Sir Harry J. Veitch, and Baron Sturlen, Holland.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a very fine group, on the stage to the left of the entrance, a Gold Medal being awarded. It contained a fine series of Odontoglossums, noteworthy among them being many forms of O. crispum, O. Goodsonii (Uroskinneri × Pescatorei), O. amabile roseum, O. Wilckeanum Goodson's var., O. eximium Leopoldii, and O. armainvillierense Herbert Goodson, Odontioda Cecilia (C. Nœtzliana × O. Wiganianum), Anguloa Clowesii, Bulbophyllum galbinum, Scaphosepalum gibberosum, Masdevallia ignea, coccinea, Veitchiana, and Rushtonii, Brassolælia Veitchii, Cymbidium Lowianum, some good Læliocattleyas, Cattleya Mossiæ Wageneri, C. Lawrenceana, C. Mendelii, Miltonia vexillaria, and numerous other good things.

E. H. Davidson, Esq., Orchid Dene, Twyford, staged a choice group, including Cattleya Mossiæ Golden Reef, a large light-coloured form, with some oblique yellow veins on the petals, suggesting staminodial influence, Odontoglossum crispum xanthotes, O. c. Mabel, a finely-blotched form, Læliocattleya Cowanii, and a few others (Silver Banksian Medal).

E. R. Ashton, Esq., Camden Park, Tunbridge Wells, sent Odontioda Adrastus (Odontioda Bohnhofiæ × Odontoglossum crispum), having acuminate white sepals and petals prettily blotched with red.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier),

sent the handsome Læliocattleya epicasta Gatton Park var., Catasetum Colmaniæ, having greenish yellow flowers spotted with brown, and the crest of the lip brown, and two plants of C. Cliftonii, one bearing a male the other a female inflorescence.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), showed Odontoglossum crispum Ruth, a handsomely blotched form.

M. Henri Graire, Amiens, France, sent Odontoglossum Saturne (apterum × spectabile), a pretty pale yellow hybrid, blotched with light brown, and an ample, somewhat elongated lip.

Sir Trevor Lawrence, Bart., Burford (gr. Mr. White), sent plants of the striking purple Oncidium Claesii, with a long twining panicle of purple flowers, two forms of Læliocattleya Fascinator-Mossiæ, and three L.-c. Canhamiana Burford var., with white sepals and petals and a rich purple lip.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Odontoglossum Eva (cirrhosum × Kegeljani), having light yellow acuminate sepals and petals spotted with brown, and a good form of O. triumphans.

E. G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent Odontoglossum Jasper Woburn Place var., a finely-coloured form, bearing two spikes.

Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), sent a richly-coloured form of Odontoglossum Aireworth.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Læliocattleya Lady Roberts (L.-c. Euphrosyne × C. Dowiana aurea), a handsome hybrid, having magenta-rose sepals and petals, and a claret-coloured lip, with yellow veining at the base.

R. Brooman White, Esq., Arddarroch (gr. Mr. Smith), sent a finely-flowered example of Odontoglossum Wilckeanum The Kaiser.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very fine group, including a beautiful series of Odontoglossums and Odontiodas, the latter comprising O. rosefieldiensis, Charlesworthii, Bradshawiæ, and Vuylstekeæ, in numerous examples, forms of Lælia purpurata, Cattleya Mendelii and C. Mossiæ, among the latter being C. Mossiæ Wageneri raised from seed, a nice lot of Læliocattleya Canhamiana, Martinetii, Ophir, and others, two very fine Cœlogyne pandurata with spikes of twelve and thirteen flowers, Bulbophyllum galbinum, Masdevallia Courtauldiana, Epidendrum atropurpureum, Cymbidium Lowianum concolor, Microstylis congesta, and a nice lot of Miltonias, Brassocattleyas, and Brassolælias (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a brilliant group, including many Læliocattleya Canhamiana and Fascinator, L.-c. Caledonia (C. Mendelii × L.-c. bletchleyensis), a blush white hybrid with rich purple-crimson lip, L.-c. Hibernia (C. Schrœderæ × L.-c. bletchleyensis), a pretty

rosy flower with orange throat to the lip, L.-c. Kathleen (L. tenebrosa × L.-c. Canhamiana), a richly-coloured hybrid, a beautiful series of Miltonia vexillaria, Bleuana, and St. Andre, good examples of Phalænopsis Aphrodite, Trichopilia tortilis, Backhouseana, and suavis, some good plants of Dendrobium Dearei, Maxillaria fragrans and Sanderiana, Eria marginata, Angræcum Leonis and Sanderianum, Lusia Amesiana, Epidendrum patens, Renanthera Imschootiana, Promenæa xanthina, Saccolabium gemmatum, Habenaria carnea, and some good Odontoglossums and Odontiodas (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including Miltonia Roezlii, and a very fine M. vexillaria Empress Augusta Victoria bearing thirteen spikes, several good Trichopilia Backhouseana, Vanda teres, Oncidium Kramerianum, Zygopetalum Brewii (Perrenoudii × rostratum), fine examples of Læliocattleya Fascinator and Canhamiana, Odontioda Charlesworthii, Odontoglossum Doris, and others (Silver Banksian Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a showy group, including fine specimens of Miltonia vexillaria and Bleuana, Brassocattleya Veitchii, Dendrobium Thwaitesiæ Veitch's var., Oncidium pulchellum, Vanda Denisoniana, Selenipedium caudatum Sanderæ, Thunia Veitchiana, Læliocattleya Canhamiana and Aphrodite, Masdevallias, &c. (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged an interesting group, including examples of Læliocattleya Cowanii, Fascinator, and others, a fine Odontoglossum Uroskinneri, two tall plants of O. luteopurpureum, Oncidium serratum, Miltonia vexillaria Cobbiana, Odontioda Charlesworthii, Trichopilia Backhouseana, Cattleya Mossiæ, &c. (Silver Banksian Medal).

Messrs. Stuart Low & Co., Enfield, staged a fine group, including some good Dendrobium formosum, pulchellum, and crystallinum albens, a nice lot of Renanthera Imschootiana, Vanda Charlesworthii, Læliocattleya Canhamiana, Miltonia vexillaria and Bleuana, Cirrhopetalum picturatum, Masdevallia Courtauldiana, and others (Silver Banksian Medal).

Messrs. W. B. Hartland & Son, Ballintemple, Co. Cork, sent a small group, including Odontoglossum Harryanum and a few others, Cattleya Mossiæ and Mendelii, Cypripediums, a pretty Cymbidium Veitchii × eburneum, &c. (Bronze Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, sent a good dark form of Cattleya Mossiæ.

Mr. C. F. Waters, Balcombe, sent a few good Cattleyas.

AWARDS OF MERIT.

ODONTOGLOSSUM AIREWORTH ORCHID DENE VAR. (crispum × Lambeauianum).—A large and richly-coloured variety, with broad rosy segments,

well blotched with chocolate brown, and the lip white with some purple spots below. Exhibited by E. H. Davidson, Esq.

ODONTOGLOSSUM LAIRESSEI (Edwardii × Cervantesii).—A striking hybrid, bearing an inflorescence of eleven white flowers, with a dark blotch at the base of the segments. Exhibited by Sir Trevor Lawrence, Bart.

ODONTOGLOSSUM NEPTUNE VAR. ST. FUSCIEN (crispum × apterum).—A handsome form with blush white flowers well blotched with brown. Exhibited by M. Henri Graire, Amiens.

CERTIFICATE OF APPRECIATION.

LÆLIOCATTLEYA FREAK (C. citrina × L. purpurata).—A remarkable hybrid, having ovoid, 2-leaved pseudobulbs, much like those of the Cattleya in habit, and drooping flowers, with somewhat spreading greenish sepals and petals, and the lip whitish with crimson-purple veins. Exhibited by C. J. Lucas, Esq.

CULTURAL COMMENDATIONS.

CATTLEYA MOSSIÆ.—To Mr. W. Smith, gr. to Albert Pam, Esq., Malting Farm, Little Hallingbury, Bishops Stortford, for a very fine specimen, growing in the clump originally collected four years ago, and bearing about 100 flowers and buds.

EPIDENDRUM ORGANENSE.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a very fine specimen of this pretty dwarf species, bearing eighteen spikes of flowers.

At the meeting held on June 17th a few interesting groups were staged, and the awards consisted of five medals, three Awards of Merit, and two Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq, (in the Chair), Messrs. J. O'Brien (Hon. Sec.), R. Brooman White, Gurney Wilson, C. J. Lucas, W. Bolton, F. Sander, F. M. Ogilvie, F. J. Hanbury, T. Armstrong, A. McBean, J. E. Shill, J. Charlesworth, H. G. Alexander, A. Dye, W. H. White, C. H. Curtis, S. W. Flory, J. S. Moss, Sir Jeremiah Colman, Bart., Sir F. W. Moore, and Sir Harry J. Veitch.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Banksian Medal for a select group, including three good forms of Odontoglossum eximium, namely, Clarksonii, Goodsonii, and Leopold, O. Pescatorei Sidneyanum, white with purple markings on the lip, O. apterum, O. Lambeauianum St. David, O. G. E. Day, and others.

Sir Mervyn Buller, Spratton, Northants, sent a fine form of Lælio-cattleya Martinetii, with copper red sepals and petals, and the lip purple, with darker veins.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent a good example of Lycaste Imschootiana (cruenta × Skinneri), an

interesting hybrid of intermediate character, whose much confused history has been given in our pages (ii. p. 8; iv. p. 78).

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent the richly-coloured Cattleya Warscewiczii var. Marga, and C. W. delicata, having blush pink sepals and petals, and a white lip, with some purple in front of the yellow disc.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent the handsome Cattleya Mendelii His Majesty The King.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including a fine specimen of Grammangis Ellisii, Spathoglottis plicata, Brassavola Digbyana with three flowers, Cypripedium bellatulum Peristeria elata, Miltonia Bleuana rosea, Odontiodas, Odontoglossum crispum xanthotes, and others (Silver Banksian Medal).

Mr. S. W. Flory, Orchid Nursery, Twickenham, staged a fine group of Cattleya Mossiæ and Mendelii, Lælia purpurata, Læliocattleya Aphrodite Canhamiana, and C. G. Roebling, Odontoglossums, Stellis ophioglossoides, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, sent some beautiful forms of Cattleya Mossiæ, including the varieties Wageneri, cœrulea, and Fletcheri, the latter white with a faint blush tint, Sophrocatlælia Venus (S.-l. Psyche × C. Mendelii), Brassolælia Helen, and Lælia cinnabrosa (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a good group, including examples of Renanthera Imschootiana, Cœlogyne pandurata, Bulbophyllum siamense, and Godseffianum, the fine Oncidium crispum enfieldense, Cattleya Warneri, Brassolælia Jessopii, good specimens of Dendrobium pulchellum, Farmeri, formosum, and various others (Silver Banksian Medal).

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent good examples of Cattleya Mossiæ Wagneri, Læliocattleya Martinetii, L.-c. Aphrodite King George V., and L.-c. C. G. Roebling.

AWARDS OF MERIT.

CATTLEYA GASKELLIANA FAIRY QUEEN.—A fine white form, with blush tint on the lip in front of the yellow disc. Exhibited by Baron Bruno Schröder.

ODONTOGLOSSUM CRISPUM THE BARONESS.—A very beautiful form, with broadly fringed sepals and petals, and the ground colour white, with clusters of pale violet blotches, and chestnut red blotches on the lip. Exhibited by Baron Bruno Schröder.

ONCIDIODA BELLA (C. Nœtzliana × O. Marshallianum).—A striking yellow hybrid, with red-brown blotches, most resembling the Oncidium in general details of the flower. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATIONS.

DENDROBIUM VICTORIA-REGINA.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., Burford, for a very fine specimen, bearing a profusion of its striking violet-blue and white flowers. It had been grown in the Cool house.

ODONTIODA COOKSONIÆ FOWLER'S VAR.—To Mr. J. Davis, gardener to J. Gurney Fowler., Esq., Glebelands, S. Woodford, for a very fine specimen of this brilliant scarlet-red hybrid.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on May 15th the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, Dr. Hartley, J. Lupton, D. McLeod, C. Parker, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was awarded a Silver-gilt Medal for a group of choice Odontoglossum crispum, including vars. King of England, Britannia, Marie, Annie, F. K. Sander, Meleagris, Orion, Bertii, Victoria-Regina, and Franz Masereel, with O. Pescatorei album, Cattleya Schrœderæ varieties, and Miltonia vexillaria.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was awarded a Large Silver Medal for a good group, including Læliocattleyas in variety, Cattleya Mendelii Duchess of York, Odontoglossum crispum and hybrids, with other good things.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), sent two plants of Cypripedium Vipanii.

Mr. J. Stott, Radcliffe, sent a nice varlety of Odontoglossum crispum.

Mr. J. Birchenall, Alderley Edge, sent Miltonia vexillaria and three varieties of Cattleya Mendelii.

AWARDS OF MERIT.

Cymbidium Gottianum (insigne × eburneum), Læliocattleya gloriosa (C. Fascinator × L.-c. Empress Frederick). Both from Col. J. Rutherford.

Odontioda Schrœderiana Highfield var. (O. crispum × Bradshawiæ). From Mr. W. Shackleton.

At this meeting competitions for the following prizes during the ensuing session were arranged :—

Silver Cup, and Prize to Gardener, for General Excellence, presented by R. Ashworth, Esq.

Medals, and prize to Gardener, for Cypripediums, presented by J. J. Bolton, Esq.

Silver Cup and Prize to Gardener, for Odontoglossums, presented by Mr. E. H. Davidson.

[P.T.O.

Medal and Prize to Gardener, for Cattleyas, presented by Mr. J. Evans.

Objet d'Art, and Prize to Gardener, presented by Messrs. Charlesworth & Co.

Prizes for Groups, presented by Messrs. Sander & Sons.

Medal for Arrangement, presented by Messrs. Cypher & Sons.

Medal, presented by the Botanic Society of Manchester.

YORK FLORAL FETE AND GALA.

The fifty-fifth consecutive Show of this Society, held at Bootham Park, York, on June 18th, 19th, and 20th, will mark another era in its history. The whole Show was a great success, and Orchids were more extensively shown than for some years past.

Among non-competitive groups, first must be placed that of Messrs. Mansell & Hatcher, Rawdon, Leeds, which was awarded a Large Gold Medal. The group comprised many fine examples of Cattleya, Lælio-cattleya, Odontoglossum, Odontioda, and Cypripedium, besides many Orchids of botanical interest. The whole was tastefully arranged, and does credit to this young and enterprising firm.

Another group that was conspicuously good was that of Messrs. Charlesworth & Co., Haywards Heath, which contained many hybrids of Cattleya, Læliocattleya, Odontioda, Oncidioda, Odontoglossum, and others. Conspicuous in the centre was a fine plant of Cattleya Hardyana × Lælio-cattleya Canhamiana, a really fine flower. This select group was awarded a Gold Medal.

Messrs. Sander & Sons, St. Albans, also exhibited a gronp containing many good things, including fine examples of Læliocattleya Canhamiana Rex, Acis, and others. They also had several Orchids of botanical interest, and were awarded a Silver-gilt Medal.

Mr. W. A. Manda, St. Albans, in front of a group of ferns, exhibited several specimens of Cattleya, the best of which was a superb C. Mossiæ.

Messrs. James Cypher & Sons, Cheltenham, were the only exhibitors for a table of Orchids arranged for effect, and were worthily awarded the first prize for a light, bright, and elegant arrangement.

Messrs. Cypher was also placed first for twelve Orchids, their finest specimens being Læliocattleya Aphrodite, Miltonia vexillaria Cobbiana, Cattleya Warscewiczii, Epidendrum prismatocarpum, and Thunia Marshall-iana. The second prize was awarded to W. P. Burkinshaw, Esq., The West Hill, Hessle (gr. Mr. T. Barker), who had fine plants of Lælia tenebrosa Walton Grange variety with four fine flowers on one spike, Cœlogyne pandurata, Cattleya Warscewiczii, C. Mendelii, Læliocattleya Canhamiana, and L.-c. C. G. Roebling. As usual, these competitors were very close together. Mr. E. H. Davidson, Twyford, Berks., was third, with smaller

specimens, which included good examples of Miltonia vexillaria, a fine Cattleya Mossiæ Emperor, Læliocattleya Excelsior (C. Mendelii × L.-c. Canhamiana), and Odontoglossum Jasper.

There was another close contest in six Orchids, when Messrs. J. Cypher & Sons were first, their best plants being Oncidium Marshallianum, Lælia tenebrosa, and Vanda teres. Mr. Burkinshaw was second, having well-grown plants of Cattleya Warscewiczii, C. Mendelii, L.-c. Lady Miller, &c. Mr. E. H. Davidson was third, with neat, well-grown specimens.

For three Orchids Mr. E. H. Davidson was first, with Læliocattleya Canhamiana, Cattleya Mendelii Twyford Gem, and Odontoglossum Dora, while Mr. Burkinshaw and Messrs. J. Cypher & Sons were second and third respectively.

For a new or rare Orchid Mr. Burkinshaw was first, with a fine plant of Cattleya Mossiæ alba, carrying seven flowers.

In the two classes, open only to amateurs for six Orchids and three Orchids respectively, Mr. Burkinshaw won both prizes. In the former Lælia tenebrosa Charlesworthii, Cypripedium Boltonii, and Cattleya Mossiæ Reineckeana var. Mrs. E. M. Hanworth were conspicuous, and in the latter a fine Miltonia Bleuana, and another C. Mossiæ Reineckeana var. Mrs. H. P. Horsley.

CALENDAR OF OPERATIONS FOR JULY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE delightful change in the climatic conditions has been advantageous to most Orchids, although it may have caused the rapid fading of those flowers which have been open for some time. It will now be possible to treat the plants in the warmer divisions more liberally, and with the increased light and heat extra air and moisture may be used in all departments. During wet and cold days, however, it is necessary to use some caution, as there is always the risk of spotting flowers if the atmosphere is heavily charged with moisture, especially if by any means the temperature should fall at all low. A cold, damp atmosphere is to be avoided at all times.

The temperatures and general treatment given in the May number should be continued, except that the ventilation and shading of the houses will require more attention. As regards shading the plants, some districts are subject to stronger sunshine than others, and it is obvious that more shading is required in the South of England than is necessary here in the East Riding of Yorkshire, where we do not experience that strong sunshine that prevails in some districts. Sunheat is what all warm Orchids delight in, therefore it is advisable to close the houses reasonably early in the afternoon, so that full advantage may be obtained from it. After the great amount of sunless weather we have experienced this spring, it will be

advisable to inure the plants gradually to the sunlight, otherwise there will be a danger of the soft, delicate growths scorching and being disfigured. It will also be advisable in all the warmer houses to warm the pipes slightly at night, which will enable the cultivator to leave a little air on at the same time. Orchids delight in a supply of fresh air at all times, and therefore it should be given on every possible occasion.

In the cool divisions also more shading will be required in some districts than in others. No two growers will agree as regards the amount of light which should be afforded these plants. Some say they should receive enough light to give the foliage a ruddy bronzy hue, while others prefer that the foliage should always appear of a pleasing green colour. My advice is to try a happy medium as far as possible. In this department a cool, damp atmosphere must be maintained at all times, and spraying may be frequently done but not carried to the extent of saturating the compost. Every effort should be made to keep this house as cool as possible, especially during periods of hot weather.

WATERING must now have most careful attention, as owing to the more frequent use of the syringe and sprayer, haphazard watering involves a danger of the compost becoming in a saturated condition. The plants should be allowed to become fairly dry between each operation. The most important of all details of plant culture under glass is the application of water to the roots and in the atmosphere.

CATTLEYAS.—C. Gaskelliana labiata and many others which make their growth during the summer months and flower during the autumn will have made considerable progress, and already the pseudobulbs and flower sheaths are formed. It is advisable at this season to keep these plants elevated well up to the roof glass, so that they may receive the benefit of the light and air to consolidate their growths. As soon as these are mature, and the flowers are commencing to push through the sheath, the water supply at the roots may be considerably reduced. These later summer and autumn-flowering Cattleyas resent a super abundance of water at this particular season, and it is often the cause of the new bulb turning black and decaying. It may also cause the loss of the roots. Plants of C. Warscewiczii (gigas) and other summer-flowering Cattleyas, as they pass out of flower, should be placed in cooler and drier quarters, where they may be inured to more light and air to ripen their pseudobulbs. By these means the plants are prevented from making premature growths, and are induced to take a decided rest, which is to their advantage.

LÆLIAS.—The Mexican Lælias will be in full growth, and may have liberal treatment as regards sunheat and water, and every inducement should be given them to build up their pseudobulbs as quickly as possible. L. purpurata, and the Læliocattleyas, of which this species is one parent,

may be repotted whenever young roots are seen to be pushing from the base of the last-made pseudobulbs. Such cool-growing plants as L. pumila, præstans, Dayana and others are developing new growths. If a light position can be found for them in the Cool house they may remain there until their flowers show, but at that stage they will be the better for the increased temperature of the Intermediate house. These plants may be afforded fresh compost whenever they begin to make new roots. They are best cultivated in shallow pans that can be suspended close to the roof glass. These miniature plants delight in a reasonable quantity of light and air at all times, and a plentiful supply of water to the roots when in full growth. The thin-bulbed L. harpophylla should also be kept in a light position in the Cool house during the hottest portion of the year, and when the growths are nearing completion should be removed to the Cattleya house until their flowering period is past.

ODONTOGLOSSUMS.—Plants of any of the dwarf-growing section, such as O. Cervantesii, Galeottianium, madrense, Rossii, maculatum, and others that are in need of new rooting material may receive attention. They are all best grown in shallow pans suspended at the warm end of the Cool house. A similar compost to that advised for other Odontoglossums will answer their requirements. The compost must be placed firmly in the pans, as all compost which contains osmunda fibre has the power to retain moisture in excessive quantities when loose. Water should be given carefully until the roots have grown freely in the new compost, after which moisture should be liberally supplied until the growths are completed. While in full growth the plants will be benefitted by light sprayings overhead several times daily during hot weather. All these plants delight in a moist and humid position, which should be considered when affording them a position in the house in which they are grown.

COCHLIODA AND ITS HYBRIDS.—C. Nœtzliana, vulcanica, and sanguinea are best grown in shallow pans suspended from the roof of the Odontoglossum house. As the numerous hybrids derived from this genera as one parent will succeed under the same conditions, they may be all treated alike. Any repotting that is necessary should be done whenever the young growths are about to push forth roots. With such a diversity of subjects the repotting of this family will go on right through the season. They should also be grown in well-drained shallow pans in the same manner as advised for the dwarf-growing Odontoglossums.

DENDROBIUMS.—The cool-growing species, such as D. Jamesianum, infundibulum, and others, should, as they pass out of flower and start into growth, have attention as regards repotting, should it be necessary. Just as the young growths commence to push roots is the best season for this operation. The tall growers do best in pots, the shorter ones in shallow

hanging pans, but in either case it is important that the plants receive plenty of light. They should be potted firmly in the usual Dendrobium compost. When growing actively the plants should be liberally supplied with water at the roots, but when growth is completed much less will suffice. During the winter months they are best removed to a light position in a cool Intermediate house.

ONCIDIUMS.—During the present month there are many of the cool Oncidiums, such as O. Forbesii, crispum, Gardneri, concolor, Marshallianum, and others which may require attention as regards repotting. They should be repotted when the young growths are from three to four inches long and are about to emit new roots. The flowers of these species are produced on pendulous racemes, and are delightful Orchids when in bloom. They all succeed in shallow pans, and resent having a large amount of compost placed about their roots, therefore moderate-sized pans should be used with a good supply of drainage. A similar compost to that used for Odontoglossums will answer their requirement, but slightly more half-decayed oak leaves may be added. The warmer-growing Oncidiums, such as O. Lanceanum, luridum, carthaginense, and others of this section may also be afforded fresh rooting material as they reach the desired condition. These plants revel in a light position in the warmest house, and whilst the roots are growing actively they should have liberal supplies of moisture, and the plants may be sprayed freely during bright days, but during their resting season water should be sparingly supplied, as their fleshy leaves are capable of withstanding a reasonable amount of drought without injury. The cool O. macranthum and allied species that are developing flower spikes should be given water at the roots whenever they become dry until their flowers open. The inflorescences of all Oncidiums should be removed soon after all the flowers are fully developed, as they exhaust the energies of the plant. Oncidiums include some of the most beautiful and interesting of Orchids, and it is a pity that so little progress has been made in their culture as compared with most other groups.

GENERAL REMARKS.—Since my last notes were written another milestone in horticultural history has been passed. Those who have had the good fortune of seeing the series of shows held in the Temple Gardens are fully aware what an important influence the latter have had upon Orchid culture in this and other countries. At the recent show at Chelsea Orchids were one of the most prominent features of one of the greatest and best shows ever held, which must be highly satisfactory to those who, like myself, look to their popularity for a livelihood. If the strides made during the next twenty years equal those made during the last it is hard to conceive what will be attained, and in the hybridisation and cultivation of Orchids there is an unlimited field of operations.

ORCHIDS AT KEW.

THE Orchid houses at Kew are still very gay, and many interesting plants are in bloom. Lycaste peruviana is bearing eight greenish-brown flowers, with a paler, much-fringed lip. A fine specimen of L. Deppei, having no fewer than fifty flowers, makes a bold show. Odontoglossum citrosmum is flowering freely, there being about two dozen spikes of its fragrant flowers in the Cool house. The plants were grown suspended from the roof in the Cattleya house, where they thrive well. Eulophia paniculata is a rare Madagascar species which is flowering in the warm division, the erect flower spike being quite six feet high, branched, and the flowers brownish. The pseudobulbs are rather large, and the leaves thick and fleshy, and marbled with two shades of green. A plant of E. lurida, which was imported from West Tropical Africa with a Bulbophyllum in the same clump, is also in bloom. Two plants of Cirrhopetalum robustum are flowering freely, one being a fine specimen bearing ten flower scapes. Saccolabium fragrans is a charming little Burmese Orchid, with the leaves about an inch in length, and three short spikes of purple flowers. Another little gem to be seen in flower is Hemipilia calophylla, the single ovate leaf being prettily marked with brown. It bears eight dark red velvety flowers on an erect spike. This plant thrives in the cool Intermediate house. Some adventitious growths on the flower spike of an Oncidium attract attention in the Cool house. They are growing in clusters of four and five at each node, and rooting freely, so that the species could easily be propagated by cutting them off and placing them in small pots of compost, like seedlings.

H. L. S.

ORCHIDS IN SEASON.

FLOWERS of two very diverse seedlings of Lælia Latona (L. cinnabarina × purpurata) are sent from the collection of H. R. Sterrett, Esq., Heston-Hounslow. One has rich cinnabar orange sepals and petals, and much purple veining in the throat of the lip, with a zone of the same colour beyond, while in the other the lip is almost entirely purple, and the sepals and petals are partially suffused with the same colour. A nice light form of Læliocattleya Ballii is also sent. They are seedlings flowering for the first time, and have not yet reached their full development.

A three-flowered inflorescence of the striking Odontonia brugensis is sent by M. Firmin Lambeau, Brussels. The flowers are 2½ inches in diameter, lilac in colour, with a dark violet-purple blotch at the base of the sepals and petals, and the lip an inch broad, with a violet-purple zone round the bronzy yellow disc of the lip. The flowers are most like the Miltonia parent in shape.

ORCHID NOTES AND NEWS.

THE great Summer Show of the R.H.S. will be held at Holland House, Kensington, on Tuesday, Wednesday, and Thursday, July 1st, 2nd, and 3rd. Particulars were given last month.

Two ordinary meetings of the Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 15th and 29th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on July 3rd. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 o'clock p.m.

MILTONIODA COOPERI.—A distinct and interesting hybrid raised by Messrs. Sander & Sons, Bruges, from Cochlioda Nœtzliana ♀ × Miltonia Warscewiczii ♂. The flowers are most like the Miltonia parent in general shape, but crimson red in colour, with a shining patch on the lip, which is derived from the Miltonia parent. It should develop into a striking thing when the seedling becomes strong.

ORCHID PORTRAITS.

CATTLEYA DOWIANA.—*Horticulture*, 1913, p. 889, with fig.

CATTLEYA HARRISONIÆ.—*Horticulture*, 1913, p. 855, with fig.

DENDROBIUM SCHUETZII, Rolfe.—*Bot. Mag.*, t. 8495.

MILTONIA VEXILLARIA VIRGINALE (specimen plant).—*Journ. Hort.*, 1913, i. p. 513, with fig.

ODONTOGLOSSUM AIREWORTH ORCHID DENE VAR.—*Gard. Mag.*, 1913, p. 411, with fig.

ODONTOGLOSSUM CRISPUM THE BARONESS.—*Gard. Mag.*, 1913, p. 451, with fig.

ODONTOGLOSSUM GEORGIUS REX.—*Gard. Mag.*, 1913, p. 396, with fig.

ODONTOGLOSSUM LAMBEAUIANUM.—*Journ. Hort.*, 1913, i. p. 556, with fig.

ONCIDIUM SPHACELATUM.—*Horticulture*, 1913, p. 780, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

B.L.—1, Lælia tenebrosa; 2, Epidendrum odoratissimum (not Oncidium); 3, Dendrobium moschatum.

A.O.—The flower appears to be Trichopilia Backhouseana, not T. suavis alba.

O.N.W.—Received with thanks. Note deferred.

Trustees of the British Museum.—Received with thanks *Catalogue of Plants of South Nigeria.*

THE ORCHID REVIEW.

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OUR NOTE BOOK.

THREE big Shows have followed each other in rapid succession, and the circumstance affords some interesting matter for comparison. The Ghent Show is a little too early for Orchids, but the period cannot be altered, being fixed by the flowering season of the Azaleas for which Ghent is so famous. But the Orchids were none the less magnificent, though the display as a whole was somewhat marred by the fact that it was broken up between six large rooms, three of which were upstairs, and these at times were inconveniently crowded. Of course Orchids cannot be staged in an unheated tent in April, and the alternative was the only practicable one under the circumstance. Hybrids on this occasion were more to the front than ever, and in Belgium, as in England, great advances have been made during the last five years, a fact particularly noticeable in Odontioda, Cymbidium, and Odontoglossum, which were present in great force. The excellence of the display was recognised on all hands, and the magnificent group staged by M. Firmin Lambeau, which was awarded the King's prize, will long be remembered. The exhibits of M. Jules Hye de Crom, M. Ch. Dietrich, Count Joseph de Hemptinne, M. Ch. Vuylsteke, MM. Th. Pauwels & Cie., and Messrs. Stuart Low & Co. were excellent, while that staged by Messrs. Charlesworth & Co. was remarkable for its richness and thoroughly representative character. The Show on this occasion was held on a new site, in connection with the International Exhibition, and we may congratulate the Society and its officials on its success.

The Chelsea Show was brilliant in every respect, and reminiscent of the old Temple Show at its best, without the accompanying disadvantage of overcrowding, which was inevitable in so restricted a space. The Orchids were scarcely so numerous as at the Royal International Exhibition held on the same spot a year ago, but there was no falling off as regards quality, and there was the usual evidence of progress among hybrids; in fact, all the eight Orchids which obtained First-class Certificates were of hybrid origin, and all but one of the fourteen to which Awards of Merit were given. It is difficult to convey an idea of so much brilliance in a few words, but a

writer in the daily press made a fairly successful attempt when he described the Show as "Fairyland, S.W.," and remarked that "the amazing Orchids make one long for a new colour language to describe the vagueness of reds that are almost browns, of crimsons that look as if they must have faded in fairyland, and of shadowy smoke-like blossoms." Another writer plunged into somewhat mythical finance, and spoke of "two Orchids valued at £10,000," which were described as "the patriotic Orchids the Georgius Rex and the Empress of India."

The Summer Show held at Holland House produced a fine display of Orchids, though not equal to that of the earlier event, and less disimilar in composition than might have been expected, though the two meetings were only separated by the short interval of six weeks. The view has indeed been expressed that this additional Show is unnecessary so far as Orchids are concerned. But it must be remembered that this Show is primarily intended for things which are not yet in perfection when the Spring Show is held, and as Orchids are curiously independent of season, and their presence is always welcomed, we may be content with things as they are. If they persist in flowering at this season they must inevitably gravitate to such exhibitions, where they are seen and admired by thousands of visitors. And, after all, have we not the fortnightly meetings of the R.H.S., and never a blank so far as Orchids are concerned!

And now we return for a moment to the perennial subject of Nomenclature, and a cutting from the *Field*, which has been obligingly forwarded by a correspondent. "Simplex" is "assured that even so moderate a title as Renanthera linschootiana, bestowed on an Orchid, is proving somewhat of a bar to its popularity as a garden plant." Perhaps he did not quite intend this, and if not he must have it out with the printer; but we think that if he had visited the big shows at Ghent, Chelsea, and Holland House before penning the said remark it would never have troubled the compositor of the *Field*, for we doubt if, taken collectively, any single species was exhibited in such numbers as the brilliant Renanthera which was named after M. Van Imschoot. What might not have happened if it had been named, let us say, Renanthera simplex? Our critic, however, is good enough to say that "if any persons are to be commemorated by their names being bestowed, it would, of course, be insular and unfair that any should be barred." He also believes that "arguments can be put forward against every known system of plant nomenclature," so perhaps the only remedy is to have no names at all.

One other matter must close our notes for the present month. In

recording the new "Odontioda Brindejonc des Moulinais" the *Gardeners' Chronicle* remarks: "The name might better be restricted to one of the three words used or some other name of a single word given." We thoroughly agree, though we say it in fear and trembling, for did we not once take a similar hint too seriously and act upon it? though with results that were a little disconcerting. But the line must be drawn somewhere, and perhaps the writer felt that things had now reached the limit, and it was time to speak out. The incident is instructive, and should be read in connection with the "Echoes of a recent discussion" in our January issue (pp. 21-24). We shall probably reach an agreement yet.

ORCHIPLATANTHERA CHEVALLIERIANA.

SIXTEEN years ago this interesting hybrid between Orchis maculata and Platanthera bifolia was recorded as British (*O.R.*, v. p. 234), it having been found by Mr. Arthur Reid, on a large moor near Perth, among a profuse growth of the two parent species. Its history was then given in detail. It has now been found in a hay-field, close to the edge of a copse, about two miles from Shepton Mallett, Somerset. The finder was Harry Stacy, a small boy, who recognised it as something unfamiliar to him, and gave it to Miss Baggallay, Elm Farm, Pilton, by whom it was sent to Kew as probably a hybrid between Platanthera bifolia and Orchis maculata, which are said to grow in the same field. It shows an unmistakable combination of the characters of these two species, the flowers being white and unspotted, but with two ample rounded side lobes to the lip, an elongated front lobe, and the spur nearly as short as in O. maculata, which it also approaches in the shape of the spike. It has very similar characters to the one previously mentioned, but is very different in colour from that figured by Camus (*Monogr. Orch. Eur.*, p. 352, t. 23, fig. 743-745), which has lilac-coloured flowers, and a shorter front lobe to the lip, and thus more resembles the Orchis parent. It is an interesting discovery, and might encourage further search where the two species grow together R.A.R.

HEXADESMIA MICRANTHA.—An Orchid sent to Kew last year from Cachi, Costa Rica, by Mr. E. Lankester, has just flowered, and proves to be Hexadesmia micrantha, a species which originally flowered with Messrs. Loddiges, of Hackney, in 1884, when it was described by Lindley (*Bot. Reg.*, xxx., Misc. p. 2). This plant is said to have been received from Guatemala. It is a small species, having short fusiform pseudobulbs, terminated by a pair of linear leaves some 2 or 2½ inches long, and racemes of about the same length, with minute whitish flowers, and the disc of the somewhat three-lobed lip green. The genus is closely allied to Scaphyglottis, chiefly differing in having six instead of four pollinia. R.A.R.

ORCHIDS AT MEIRELBEKE.

THE Ghent week afforded an opportunity of renewing an acquaintance with the fine Orchid establishment of M. Th. Pauwels & Cie., Meirelbeke, of which an account has already been given (*O.R.*, xvi. pp. 161-163). During the intervening five years great progress has been made in hybridising, and a number of new houses have been built, in which the latest improvements have been incorporated. We found many interesting features to note, though, as usual on such occasions, most of the choicer things in bloom were away at the big show.

The older houses were first visited, and these extend from a corridor seventy metres long, which is largely devoted to a batch of the handsome Cymbidium Pauwelsii (Lowianum concolor × insigne), a few of which were flowering. Passing into the first Odontoglossum house we found both established plants and seedlings in all stages, many of the former being in spike, and a few O. crispum and hybrids in bloom. The seedlings were very interesting. The seeds are sown on the compost of established plants, and after germinating are pricked off when large enough to handle, and potted on as necessary. Those in tiny pots are plunged into pans of fibre to keep them moist. The seedlings include many promising crosses, and all are in thriving condition.

Two other Cool houses followed, in which we noticed a few Odontoglossum Pescatorei and many O. crispum in bloom, and it was interesting to see both O. Andersonianum and O. Adrianæ out of the same importation of O. crispum. The latter were mostly typical unspotted forms, to the extent, it was estimated, of about ninety-five per cent. A number of Odontoglossums were bearing seed pods, and among them a very purple form of O. percultum which was also in bloom. We noted two Odontioda Charlesworthii in bloom, with Masdevallia Pourbaixii and M. coccinea, while a few Oncidium concolor were in spike.

The next was a Warm house, largely devoted to the fragrant Cattleya Schrœderæ, among which we noted a good C. S. alba with three flowers, and here was a batch of Dendrobium Pierardii, a few being in bloom, and some small seedlings of Miltonia Roezlii × Odontoglossum amabile, which should be interesting. Several succeeding houses were devoted to Cattleyas and allies, including numerous promising hybrids, and fine batches of the leading species. Here was pointed out a distinct white Cattleya with orange throat that appeared among C. Mossiæ, and which we suspect comes under C. Mossiæ Wageneri. A few C. Mendelii and C. Lawrenceana were in bloom, also a seedling between the latter and Lælia tenebrosa. A lot of Cattleyas were bearing capsules of hybrid seed, and were collected together for convenience of treatment. We noticed also a good Cymbidium

Lowianum concolor and Dendrobium fimbriatum oculatum in bloom, and Aërides Houlletianum in spike, while among a lot of Cypripediums was C. Alma Gervaet (C. Lawrenceanum Hyeanum × Maudiæ), which retains the albinism of its parents. Then came a house of Brassocattleyas and Brassolælias, in great variety, and the robust health of the plants, like that of the collection generally, shows how well the cultural details are looked after. Osmunda fibre and sphagnum moss are used as compost.

We now come to the block of new houses, each thirty metres long, in which the latest improvements have been incorporated, and found everything in thriving condition. The Phalænopsis house contained a fine batch of healthy plants, of which a few P. Schillerianum were in bloom, while a lot of P. amabilis were in one of the Cattleya houses, together with extensive batches of C. Lawrenceana and Vanda cœrulea. Here also were pointed out a number of Annamese Orchids, including the pretty Cirrhopetalum miniatum, and we noticed plants of Eulophiella Hamelinii and Grammangis Ellisii, while two plants of Saccolabium giganteum were in bloom. Other botanical species were noticed here and there in the collection, though mostly not in bloom.

Another house contained a fine batch of Dendrobium Phalænopsis on one side and Oncidium splendidum on the other. Some of the latter have been in the collection for seven years, and were in excellent health. They are grown in osmunda fibre and kept rather dry. Here were also a few plants of Dendrobium Wardianum.

Cattleyas are imported largely, and a house was devoted to C. labiata and C. Trianæ, the latter having overflowed into the next house in quantity, where also we noted a batch of Miltonia vexillaria. Another house was largely devoted to recently imported plants, which were lying under sheets of paper on the stages to enable them to plump up again. Then came a house containing a fine batch of Odontoglossum grande and Cypripediums, a few of the latter being in flower.

The seedling house came last, and proved particularly interesting. A number of large square cases with glass tops are used, and into these is put a bed of cocoanut fibre as moisture-retaining material. The seeds are sown on canvas, stretched over sphagnum moss and then placed in pots, and here they germinate with the greatest freedom, in some cases almost covering the canvas with tiny green globules. In each case is put one or two plants of Pinguicula caudata, as "fly-catchers," for the fly which attacks germinating seedlings is as troublesome here as elsewhere. The house is kept warm and moist, and as uniform in temperature as possible; the thermometer, we noted, registered the equivalent of 88° Fahr. There were thousands of seedlings in every stage, but we cannot attempt to enumerate the crosses. We noted, however, some seedlings of Cattleya

Dowiana aurea that have been obtained to increase the stock of this choice Cattleya. The seedlings are grown here until they reach a considerable size, and are then moved on to the other houses as room is required.

Want of space prevents a fuller account of this flourishing establishment, and we must congratulate M. Pauwels and his assistants on their success. The situation is low, but the air and light are good, and there are no fogs in the winter to contend with. The houses are well designed, and the arrangements for ventilation and shading perfect. Under such conditions, and with the enterprise and attention to detail that is everywhere apparent, one can understand the excellent condition of the collection and the substantial progress that is being made.

ORCHIDS AT LOOCHRISTI.

THE name of M. Ch. Vuylsteke is a household word among lovers of Odontoglossums, and the famous establishment at Loochristi was naturally one of the attractions during the Ghent week. On calling there we found that another great development has taken place, M. Vuylsteke having erected two large blocks of houses on the Belgian system, each comprising what may be described as six houses in one, the intervening divisions being absent, and the ridge and furrow roof being supported on piers, so as to give free circulation of air between the different divisions, an arrangement which is quite practicable when all the divisions are to be treated alike, as in the case of Odontoglossums and Odontiodas, which have long been M. Vuylsteke's speciality.

An enormous number of plants were in flower or spike in the different houses, the majority of the Odontoglossums being blotched hybrids in endless variety, for blotching seems to be quite a dominant character. The amount of variation among seedlings out of the same batch is remarkable, though unfortunately the parentage is not known in a good many cases. The experiments were begun many years ago with a number of good forms, and the best of the resulting seedlings have again been intercrossed, probably with certain additions from outside, but the well-known polymorphism of secondary hybrids defies all efforts to trace their origin subsequently unless the batches have been carefully isolated. One such case was seen in O. crispum Luciani × Wiganianum, where the variation was remarkable. There were both white and yellow grounds, with blotching of the most diverse kind. One was a white of good shape, with chocolate blotches and the disc of the lip bright yellow. A second had quite different blotches of similar colour and rather poor shape. A third had a yellow ground with red-brown blotches, and our notes proceed, one was much like O. loochristiense, another near O. Wilckeanum, while the next would pass for a blotched O. crispum. But this condition of things

seems almost universal among secondary hybrids, and has been frequently recorded in our pages.

O. Aiglon is an enormous flower, measuring 4½ inches from tip to tip of the petals, and 4¾ inches in the other direction. It is the largest form that has been raised at Loochristi, and has a rosy ground, with a zone of large red-brown blotches on the sepals and petals, and a large blotch in front of the yellow disc of the lip. One Odontoglossum was noticed in which the blotching was heavy and of an almost bluish purple shade, and this was said to be one parent of O. gandavense.

Examples of most of the older well-known hybrids were in bloom, with swarms of seedlings, some flowering for the first time, and showing the usual variation in the shape, arrangement, and colour of the blotches, and in the ground colour, which is white, rosy, or occasionally light yellow. They made a fine display, and we may add that large quantities are grown for cut blooms for market.

The Odontiodas made a brilliant display, and showed an equally bewildering amount of variation. The remarkable form called O. Blushing Bride, from which every trace of scarlet had vanished, was noted at page 190. and here were pointed out nine others from the same batch—Odontoglossum Pescatorei ♀ × Odontioda Vuylstekeæ ♂—including a white form blotched all over with red, a rosy form with a red zone near the base, a yellow with a similar zone of colour, a yellow with pale brown markings, and others with more of the scarlet colour. Here also was a plant of O. Vuylstekeæ bearing two fine panicles, and another with one of seventeen branches. M. Vuylsteke remarked that he once had a panicle bearing as many as 266 flowers, which must have been a fine sight. O. Bradshawiæ showed much variation, and one had a distinct yellow zone round the red blotches. Two other very diverse seedlings from the same capsule were pointed out, the plants being in flower for the first time. O. Chantecleer is a remarkable reversion, the flower being wholly scarlet and convex in shape, like the Cochlioda parent, but considerably larger. A great amount of reversion may be anticipated as time goes on.

A large number of capsules were noticed, showing that hybridising is being carried on with energy, and this brings us to the younger seedlings, which are grown separately, and are both exceedingly numerous and in thriving condition. The one and two-year old plants were in separate houses, and the little seedlings, both Odontiodas and Odontoglossums, were pictures of health and vigour. Their flowering will be awaited with much interest.

M. Vuylsteke also showed us a house of Miltonias, containing a number of seedlings in excellent condition, and from some promising crosses, which we shall hope to hear of later. Some good M. vexillaria were in bloom.

Lastly we went into a house of Cypripediums and other things, and noted a good Maxillaria Sanderiana in bloom. But time was pressing, and we could not note a tithe of the interesting things seen. The quality of the plants, however, is well-known, and we must congratulate M. Vuylsteke and his son, who has long been in the business, on the excellent condition of the plants and the establishment generally.

OBITUARY.

JULIUS ROEHRS.—By the death of Mr. Julius Roehrs, horticulture in America has lost one of its most enthusiastic pioneers in the development of the wholesale and retail seed business. Mr. Roehrs had been ill all the winter with a bad cough, and the doctors advised him to go to Capri. There he stayed three months, but, not getting better, he returned to New York from Naples on June 28th, and arrived home on the 8th of July, and died on the 20th inst., in his seventy-third year. Born in Germany, where he received his early training, Mr. Roehrs, whilst still a young man, emigrated to the United States, entering private service in Jersey City, New Jersey, where he cultivated most successfully Orchids, stove and greenhouse plants, including some of the finest specimens of Phalænopsis Schilleriana and P. amabilis. The collection was eventually dispersed owing to the death of the owner, and Mr. Roehrs shortly afterwards commenced business on his own account at Rutherford, New Jersey. His energetic, vigorous constitution, amiable disposition, and strict business qualities enabled him to create an establishment unequalled in America. His keen judgment of plant novelties prompted him to devote whole houses to particular kinds, and he visited Europe almost every year in quest of them. Twenty-five years ago he commenced to cultivate Orchids, which were at that time almost unattainable in New York flower shops. He began by suspending and growing them from the roofs of his Palm houses. Gradually the demand developed to such proportions that his nursery now contains many Orchid houses of great size and modern construction, and includes thousands of specimens of Cattleya gigas, C. Mossiæ, C. Mendelii, C. Trianæ, C. labiata, Oncidium varicosum, O. splendidum, Dendrobium formosum, and D. Phalænopsis, thousands of Vanda cœrulea, and many other useful varieties of Orchids, together with a collection of rare species and hybrids. His Palm and decorative plant business is also one of the largest in the country, especially in plants for use at Christmas and Easter. He leaves a widow, two daughters, and five sons. Three of the latter are in the business. Each has received a thorough horticultural training in this country, which, together with their home experience, should enable them to maintain and continue the excellent reputation of the "Roehrs Establishment."—*Gardener's Chronicle.*

CYPRIPEDIUM VIKING.

THE annexed figure represents the handsome Cypripedium Viking (C. Buchanianum × illustre) which was exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), at the R.H.S. meeting held on December 3rd last, and received an Award of Merit. The photograph has been kindly sent by the exhibitor. An analysis of the parentage allows its characters to be understood. C. Buchanianum was derived from C. Druryi × Spicerianum, and C. illustre from C. Lathamianum (Spicerianum × villosum) × nitens (insigne × villosum). Thus four species are represented in the ancestry, of which C. Spicerianum comes in through both parents, and its influence is seen in the broad white dorsal sepal, while the very broad purple band shows the combined influence of C. Spicerianum, Druryi, and villosum. The short broad petals recall C. Buchanianum, and the yellow colour suffused and marked with brown show the influence of both C. Druryi and C. villosum. It is a very promising hybrid, and should develop into a fine thing.

Fig. 40. CYPRIPEDIUM VIKING.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

THIS month every care must be given to keeping the temperature as near to 65° Fahr. as possible, and this can only be achieved by judicious damping, ventilating, and by lowering the blinds often as early as 9.30 a.m., and keeping them down until well after five in the afternoon. Look over all the plants daily, and to all that need it give a thorough soaking. Personally I prefer giving water at this time of the year in the evening, being content to rely on damping in the morning to afford the necessary moisture.

This is essentially the growing season, and not much is in flower in the Cool house, which, perhaps, is fortunate, as Odontoglossums, especially if in bloom during this month, never possess the long lasting qualities which are such a pleasing feature with the winter and early spring blooming species and hybrids.

Should the permanent shading of flour and water, which was applied to the roof glass in May, be showing any signs of wearing off, it will be found advisable to apply another coating, and all danger of plants being scorched by the sun will be removed. This liquid shading is indispensable to a Cool Orchid house, for whilst preventing the sun from entering the house it does not exclude any light, whereas excessive use of the roller blind tends to create too gloomy surroundings, and causes the plants to become weak and spindly. Watch carefully for all manner of insect pests, thrips and slugs being the most troublesome at this season.

Odontoglossum grande is now becoming well advanced in completing its new growths, and a little shade from eleven till three o'clock will probably be needed. A brown scale often attacks this species on the underside o the leaves. This must be looked for at frequent intervals. It comes away readily if gently scraped with a sharp knife, and should be immediately burnt.

Although at present somewhat prohibitive in price, some of the earlier-raised Odontiodas afford a magnificent display in a Cool house, and when one realises that it is only a few years since the first one made its appearance, it is astounding the number of primary and secondary hybrids which are now in cultivation. For a selection of the best and cheapest I would recommend O. Bohnhofiæ, Bradshawiæ, Cooksoniæ, ignea, loochristiensis, rosefeldiensis, Thwaitesiæ, and Vuylstekeæ. These require very similar cultivation to the Odontoglossum hybrids, with, perhaps, a trifle warmer temperature in the winter. Keep them slightly drier at the roots for a few weeks after flowering, but it should be remembered that these, and, in fact, all hybrid Orchids, do not need and do not take advantage of such a period of rest as is enjoyed by the species.

THE HOLLAND HOUSE SHOW.

THE Summer Show of the Royal Horticultural Society was held at Holland House, Kensington, on July 1st, 2nd, and 3rd, in delightful weather, and produced a magnificent display and a very large attendance of visitors. The Orchids were excellent, both in quality and arrangement, and the superb group staged by Messrs. Sander & Sons was awarded the Coronation Cup for the best exhibit in the Show. Two Gold and four other medals, three Cups, three First-class Certificates, four Awards of Merit, and two Cultural Commendations were also awarded. Two or three well-known exhibitors were unrepresented on account of the rival claims of the Bristol Show, which is reported on another page. The Committee, Judges, and Officials were, as usual, entertained by the Council to luncheon, at which the new President, Field Marshal the Rt. Hon. Lord Grenfell, presided.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), and Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, A. Dye, S. W. Flory, R. G. Thwaites, W. H. White, W. P. Bound, Walter Cobb, A. McBean, Stuart Low, J. Wilson Potter, W. H. Hatcher, H. G. Alexander, R. Brooman White, R. A. Rolfe, W. Waters Butler, G. F. Moore, F. Sander, J. Charlesworth, C. J. Lucas, J. S. Moss, F. Peeters, and Sir Jeremiah Colman, Bart.

The Orchid Judges were: H. J. Chapman, de Barri Crawshay, and J. E. Shill.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), staged a very fine and effectively-arranged group, to which a Large Silver Cup was awarded. It contained a charming series of Læliocattleya Canhamiana, L.-c. Hippolyta var. Phœbe, various Cattleyas, good examples of Phalænopsis amabilis Rimestadiana, the brilliant Renanthera Imschootiana, Epidendrum Boundii, a fine Odontoglossum Lady Roxburgh with four spikes, O. Thompsonianum, O. tripudians, the pretty yellow Sobralia Colmaniæ, and a pale pink form of the same, some excellent Odontioda Bradshawiæ, Cupid, and Vuylstekeæ, some well-flowered Miltonia vexillaria and the white var. Lambeauiana, Oncidium Papilio and macranthum, Catasetum Cliftonii, Lissochilus speciosus, Brassia bidens, Dendrobium Victoria-Regina, D. Alpha, Cirrhopetalum robustum and picturatum, Bulbophyllum tremulum and barbigerum, Masdevallia calura, Eria pannea, Physosiphon Loddigesii, Pleurothallis stenopetala, Epidendrum prismatocarpum with five spikes, Lælia tenebrosa, good examples of Cypripedium callosum Sanderæ, and other interesting things.

W. Waters Butler, Esq., Southfield, Edgbaston, sent a richly-coloured form of Cattleya Warscewiczii, and C. Clymere, a charming hybrid between the preceding and C. Rex, bearing five flowers.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent the fine Odontoglossum triumphans Lionel Crawshay, O. Boadicea, a broad-petalled hybrid from the latter crossed with O. armainvillierense, and O. Vesta (bellatulum × percultum).

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent two fine examples of Odontioda Lambeauiana Fowler's var.

M. Jules Hye de Crom, Ghent (gr. M. Coen), sent Miltonia vexillaria gigantea, a very large deep rose form, M. Hyeana ardentissima, a large white flower with a dark crimson mask on the lip, and M. H. gracilis, a charming white form with a rosy flush on the petals and lip.

Messrs. Sander & Sons, St. Albans, staged a magnificent group, which gained a Gold Medal and the Coronation Cup for the finest exhibit in the Show. The centre was made up of the graceful Phalænopsis amabilis Rimestadiana with about forty sprays, and on either side were numerous white and coloured forms of Cattleya Mossiæ. At the two ends were masses of the brilliant C. Warscewiczii Sanderiana, while Læliocattleyas, Odontoglossums, and Odontiodas, Miltonia vexillaria, Bleuana, and other fine things made up a group of remarkable brilliance. Among interesting things noted were examples of Odontonia Lælia Sander, St. Alban, and Magali Sander (M. Warscewiczii × O. armainvillierense), the latter with purplish red sepals and petals, and a blush white lip with some reddish markings, the interesting Miltonioda Cooperi (described at page 232), having a slender branched spike of brick-red flowers with lighter apex to the lip, Odontoglossum tigrinum, gandavense, Uroskinneri album, and others, Vanda Parishii, Brassia verrucosa, Cirrhopetalum robustum, Saccolabium curviifolium, Odontioda keighleyensis and St. Fuscien, Ornithocephalus grandiflorus, Nanodes Medusæ, Masdevallia Courtauldiana, the striking Stauropsis lissochiloides, Peristylis goodyeroides, Cypripedium Sladdenii, Platanthera iantha, Acineta chrysantha, Dendrobium regium, Eulophia nuda, and many other interesting things.

Messrs. Charlesworth & Co., Haywards Heath, received a Gold Medal for a brilliant group, arranged in undulating lines, and containing a fine series of hybrids and the showy species of the season. We noted the hand-some Miltonia Charlesworthii, with rose-pink flowers and a crimson mask to the lip, the pure white M. vexillaria La Niege, and other choice forms, Odontoglossum Doris magnificum, O. percultum, O. Olympia, O. President Poincaré, finely blotched with purple, O. Williamsianum, O. crispum xanthotes Yellow bird, with deep yellow blotches on the sepals and lip, Vanda parviflora, Odontioda Charlesworthii, Lambeauiana, Vuylstekeæ, Chantecleer, and others, Peristeria elata, a fine series of Phalænopsis amabilis Rimestadiana, a fine example of Oncidioda Charlesworthii, O. Bella (C. Nœtzliana × O. Marshallianum), with flowers closely resembling

the Oncidium parent, Cymbidium tigrinum, the purple Oncidium Claesii, Aëranthes grandiflorus, a nice lot of Epidendrum vitellinum, Schomburgkia tibicinis, Dendrobium Phalænopsis, Læliocattleya Gottoiana The President, a noble specimen, fine forms of L.-c. Canhamiana, Aphrodite, Ulysses, and others, Cattleya Mossiæ and var. Reineckeana, Disa Luna, and others.

Messrs. Mansell & Hatcher, Rawdon, Yorks, received a Silver Cup for a large and very artistically arranged group, in which Phalænopsis amabilis Rimestadiana and Renanthera Imschootiana were very effectively combined, with banks of Cattleya Mossiæ, Mendelii, and Warscewiczii, Læliocattleyas, and Odontoglossums, while in front were Miltonia vexillaria, Trichopilia Backhouseana and other dwarf things. We noted good examples of Cochlioda Nœtzliana, Oncidium Gardneri, pumilum and unicorne, Lycaste aromatica, Disa grandiflora, Dendrochilum filiforme, Promenæ xanthina, crowded with flowers, Odontioda Bradshawiæ, Lambeauiana, Cupid and Thwaitesii, the striking Bulbophyllum Binnendijkii, Brassia caudata, Miltonia vexillaria Queen Alexandra, the variable Læliocattleya Cowanii, Odontoglossum crispum Wilckeanum, and others too numerous to mention.

Messrs. Stuart Low & Co., Bush Hill Park, received a Standard Cup for a very fine group, including a number of Phalænopsis amabilis Rimestadiana, Dendrobium pulchellum, Dearei, and Falconeri, Vanda teres and Charlesworthii, Chysis bractescens, Cirrhopetalum robustum, Brassavola Digbyana, Stanhopea tigrina, Oncidium unicorne and sarcodes, Calanthe veratrifolia, Masdevallia muscosa, the fine Cattleya Dupreana (Warscewiczii × Warneri), some good C. Mossiæ and Mendelii, Læliocattleya Aphrodite, Cœlogyne Massangeana and pandurata, Acineta Humboldtii, Renanthera Imschootiana, Odontioda Thwaitesii and Vuylstekeæ, some good Cypripedium niveum, and other interesting things.

Mr. S. Flory, Orchid Nursery, Twickenham, received a Silver-gilt Flora Medal for a very fine group, containing Cattleya Mossiæ Wageneri, and a form with variegated petals, C. Gaskelliana alba, Brassavola Digbyana, Lælia purpurata, with richly-coloured lip and petals, Læliocattleya bletchleyensis King George, L.-c. Rubens, and others, a number of Anœctochilus regalis, setaceus, and intermedius, Macodes Petola, Odontoglossum armainvillierense xanthotes, O. Wilckeanum, O. Rossii × spectabile, &c.

Messrs. James Veitch & Sons, Chelsea, received a Silver Flora Medal for a showy group, including some good examples of Læliocattleya Canhamiana and Aphrodite, distinct forms of Lælia Latona × L.-c. Dominiana, Disa Luna and grandiflora, the latter raised from seed, Cattleya Harrisoniana, Vanda tricolor, Epidendrum prismatocarpum, Odontioda Bradshawiæ, Odontoglossum Jasper, armainvillierense, Solon, illustrissimum, some good O. crispum, and others.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, received

a Silver Flora Medal for a fine group, including Cypripediums, Oncidium flexuosum and ampliatum, Odontoglossum Pescatorei, a few good Odontiodas, Cattleya Mossiæ Wageneri, and others.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a small lot of choice things, including Cattleya Mendelii Lambeauiana, a pretty white form with a bluish front to the lip, C. Parthenia, C. Mossiæ Wageneri, Nanodes Medusæ, Bulbophyllum Lobbii and barbigerum, Læliocattleya Aphrodite, Epidendrum virens, Cypripedium Lawrenceanum Hyeanum, C. callosum Sanderæ, C. Rossetti Westonbirt var., and C. Goweri magnificum.

Mr. W. A. Manda, St. Albans, sent two forms of Cattleya Mendelii, and C. Warscewiczii Mandaiana, a light pink form with some yellow veining in the throat, suggestive of C. Hardyana.

FIRST-CLASS CERTIFICATES.

MILTONIA SANDERÆ (M. St. Andre × vexillaria memoria G. D. Owen).—A charming hybrid, having blush white flowers, with a blackish crimson mask to the lip and a few short radiating lines. Exhibited by Messrs. Sander & Sons (see figure on page 256).

MILTONIODA HARWOODII FOWLER'S VAR. (C. Nœtzliana × M. vexillaria).—A very fine form, with bright cerise flowers and the crest of the lip yellow. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA BREWII (Charlesworthii × Odontoglossum Harryanum).—A remarkable hybrid, having deep brownish red sepals and petals, and a broad lip with some orange splashes and a 7-lobed yellow crest. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CATTLEYA MOSSIÆ VAR. DREADNOUGHT.—A remarkably fine form, having rose-pink sepals and petals, and a rich crimson lip veined with orange on the disc. Exhibited by Messrs. Sander & Sons.

CATTLEYA MOSSIÆ VAR. OLYMPIA.—A charming blush white form, with rose-purple veining on the front of the lip, and orange in the throat. Exhibited by Messrs. Charlesworth & Co.

CATTLEYA SERENATA (Whitei × Mossiæ).—A fine hybrid, with rose-coloured sepals and petals, and a darker lip with some yellow in the throat. Exhibited by Messrs. Mansell & Hatcher.

ODONTIODA WILSONII THE PRESIDENT (C. vulcanica × O. Pescatorei).—A large and handsome form, having white flowers well blotched with claret-colour. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATIONS.

GRAMMANGIS ELLISII.—To Messrs. Charlesworth & Co., for fine examples of this striking Madagascar species, one of which bore two spikes and an aggregate of sixty-four flowers.

ODONTIODA BRADSHAWIÆ.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart., for a very fine specimen, bearing two immense panicles of scarlet flowers.

ORCHIDS OF SOUTH NIGERIA.

WE have received from the Trustees of the British Museum a copy of the *Catalogue of the Plants collected by Mr. and Mrs. P. A. Talbot in the Oban district of South Nigeria*, by Dr. A. B. Rendle, M.A., and others, with a short account of the district and the general character of the vegetation by Mr. Talbot. The Oban district lies within the bend of the Cross River, at a distance of 40 to 100 miles from the Gulf of Guinea, and is bounded on the east by the German Cameroons, of which it is botanically an offset. It is very undulating, with an altitude of 300 to 900 feet, and masses of hills towards the centre forming a clearly marked watershed nearly 4000 feet high. The annual rainfall averages 175 inches, and the great humidity results in a very luxuriant vegetation. The forests are predominently evergreen, though with a large proportion of deciduous trees. The number of species in these forests is said to be immense, and the collection dealt with contains 1016 species and varieties, including seventy Orchids, of which twenty are described as new. Their affinity is almost exclusively West Tropical African, and a considerable proportion occur also in the Cameroons, with a few more widely distributed through West Tropical Africa. The novelties comprise seven Angræcums, six Bulbophyllums, four Polystachyas, and a single species each of Vanilla, Platylepis, and Habenaria. Their principal characters are illustrated in a series of four useful plates. The novelties are described separately, but the whole of the species collected are enumerated in a systematic list at the end of the work. A glance through this shows about twenty that we have met with in cultivation, but few of them are showy, the chief exceptions being Angræum caudatum, Eichlerianum and Chailluanum, Ansellia africana and Ancistrochilus Thomsonsianus. There is one matter to which we must take exception, namely the inclusion of Listrostachys and Mystacidium in Angræcum. It is not our experience that "affinity deduced from general characters is at variance with that deduced from the single character of the pollinia and their appendages," nor yet that "species obviously closely allied" are "artificially separated on this criterion." The marked rostellar differences in these genera are no mere artificial characters, and we find Saccolabium more difficult to separate from Angræcum by absolute characters. In fact Angræcum imbricatum has been described as a new Saccolabium which shows that resemblances are not always affinities. There is one other consideration, namely that this reversion to an old arrangement leaves the American genera of the group with nothing to

stand upon, yet no American species has the typical Angræcum structure. We may conclude by saying that the Catalogue forms an important addition to our knowledge of Tropical African botany, and we may congratulate Mr. and Mrs. Talbot on their excellent work when residing in the Oban district.

BEE VISITING CYPRIPEDIUM REGINÆ.

WHILST examining the flowers of the well-known hardy Cypripedium Reginæ (spectabile) in the Alpine house at Kew, a small humble-bee flew by, returning in a few seconds and, without any hesitation, alighted upon the front part of the pouch and immediately entered the hole in the centre. On finding that it was trapped it made frantic efforts to return the same way, but the infolded margin prevented it from doing so. After making the circuit of the pouch a number of times it then crawled up to the base of the column and struggled violently to get out by way of one of the small openings on either side of the column. At first the hole was much too small to allow of this, and for quite two minutes the bee was half in and half outside the hole. All the while it was struggling to get out it set up a shrill noise with its wings. After a time it became exhausted, remained quiet for a minute or so, and then recommenced its struggles. This time it succeeded in releasing itself, and I then saw that it was covered on the head and back with a lot of the viscid pollen. Before it flew away it set about vigorously clearing off the mass of pollen with its feet, leaving only a trace of the mass which was attached to its back in the first instance. Although I remained for some time afterwards in the vicinity of the flower it did not return.

C. P. RAFFILL.

[This affords an interesting glimpse of what takes place in a state of nature, for Hermann Müller has shown that the European C. Calceolus is visited by five species of humble-bee, belonging to the genus Andrena, these being attracted by the colour and perfume of the flowers, and by the hairs lining the floor of the pouch, which are sometimes covered with drops of honey. He observed the efforts of the bees to escape by the orifice through which they entered, but, finding this impossible, they climbed up to one of the lateral openings at the base of the pouch, thus getting smeared with the pollen, this in turn being left upon the stigma of the next flower visited. It appears that even here the bees do not escape without a struggle, and those that are too large or two weak to push their way through the opening often perish from hunger within the pouch. He had often found Andrena parvula and several species of flies dead within the pouch. It would be interesting to know the bee which fertilises the flower of C. Reginæ in a wild state, or indeed any of the North American species, which form a very interesting group.—ED.]

HYBRID ODONTOGLOSSUMS.

WE recently gave an account of the interesting collection of John S. Moss, Esq., Wintershill Hall, Bishops Waltham (pp. 111-117), in which we alluded to the numerous blotched Odontoglossums that were being raised there. The annexed illustration represents a group of fifteen forms that were in bloom together, and is reproduced from a photograph taken by Mr. Kench, Mr. Moss's able gardener. Though greatly reduced in size, they give an excellent idea of the shape and markings of the flowers, and also of their relative size, all being photographed on a single plate, post-card size, and thus on the same scale. They were cut up and re-arranged by ourselves, so as to bring the different kinds together. Figures 41 to 46 were

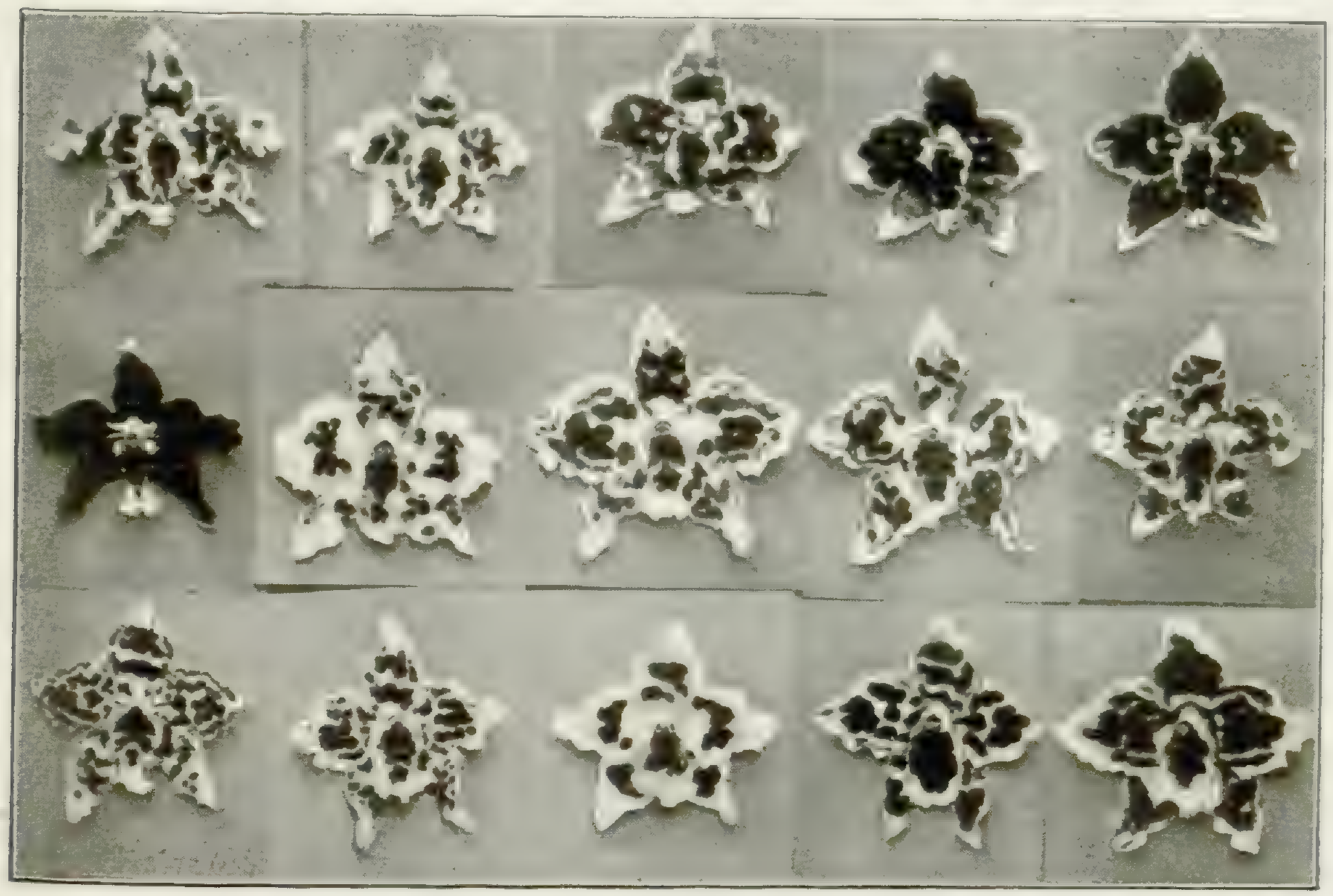

Fig. 41—55. A GROUP OF HYBRID ODONTOGLOSSUMS.

(Names as in text.—The figures read from left to right.)

derived from O. illustrissimum × crispum, and show a wide range of variation in the amount of blotching, with smaller differences in size and shape. In fig. 46 the sepals and petals are almost suffused with dark purple except for a very narrow white margin. Figures 47 to 50 are seedling blotched crispums and vary considerably. The one shown in fig. 48 is particularly promising, but all are good. Figures 51 and 52 are forms of O. Fascinator (Adrianæ × crispum Mossiæ), and 51, it will be noticed, is particularly charming. Fig. 53 is O. Doris (Ossulstonii × crispum), and is a beautiful white form with a well-shaped lip, and a zone of blotches on the sepals and petals. Fig. 54 is O. exultans (excellens × crispum Mossiæ),

and is a heavily blotched form of good shape. Lastly, fig. 55 is a very fine O. eximium (Pescatorei Charlesworthii × crispum Franz Masereel), and is excellent both in shape and colour. It is a very interesting series, and affords a glimpse of the work which Mr. Moss is carrying on with such enthusiasm and success.

NOVELTIES.

DESCRIPTIONS of several additional novelties from various collections have appeared since our last notes were given (*O.R.*, xx. pp. 293-294), and may now be summarised:—

PLEUROTHALLIS REPENS, Rolfe.—A Brazilian species, found in a clump of Lælia purpurata, and flowered in the collection of Sir F. Wigan, Bart., Clare Lawn, East Sheen, in January, 1904. It is an ally of P. Josephensis, Rodr., and has solitary flowers, striped with purple-red on a pale ground.—*Kew Bulletin*, 1912, p. 131.

DENDROBIUM IMTHURNII, Rolfe.—Discovered by Sir Everard im Thurn, K.C.V.O., late Governor of Fiji, near the Erakor Lagoon, Efate Island, New Hebrides, and flowered at Kew in August, 1911. It is allied to D. antennatum, Lindl., and bears long racemes of white flowers, with purple lines on the lip.—*l.c.*, pp. 131, 206. (See also *Bot. Mag.*, t. 8452).

BULBOPHYLLUM CONGESTUM, Rolfe.—Flowered in the Royal Botanical Gardens, Glasnevin, in September, 1910. It is a native of Burma and Yunnan, and is allied to B. odoratissimum, Lindl., but has smaller flowers with shorter sepals and petals and a yellow lip.—*l.c.*, p. 131.

CIRRHOPETALUM MICHOLITZII, Rolfe.—An Annamese species, collected by Micholitz, which flowered at Glasnevin, and with Messrs. Stuart Low & Co., in October, 1910. It is allied to C. retiusculum, Rchb. f., and has deep yellow lateral sepals, and dark purple lines on the petals and dorsal sepal.—*l.c.*, p. 132.

POLYSTACHYA REPENS, Rolfe.—A very distinct species, with creeping habit, which flowered in the collection of Sir Trevor Lawrence, Bart., at Burford, in November, 1911. It was sent from Uganda by E. Brown, and has buff yellow sepals and petals striped with brown, and a deep red-brown lip.—*l.c.*, p. 132.

CHONDRORHYNCHA LIPSCOMBIÆ, Rolfe.—An interesting Panama species which flowered in the collection of Mrs. Lipscomb, Wimbledon, in December, 1911.—*l.c.*, p. 133. Its portrait and history were given at page 88.

GONGORA TRACYANA, Rolfe.—Introduced by Mr. H. A. Tracy, Twickenham, through his collector, E. Kromer, and flowered in the collection of Mr. J. S. Bergheim, Belsize Park, N.W., in March, 1911, and shortly afterwards with the importer. It is allied to G. Scaphephorus,

but has very much smaller flowers, with greenish yellow sepals and petals and a white lip, all spotted with brown.—*l.c.*, p. 133.

ANGRÆCUM ANDERSONII, Rolfe.—A curious leafless species, allied to A. cæspitosum, which flowered at Glasnevin in December, 1911. The flowers are semipellucid white, with a broad emerald green line on the sepals, a green centre to the lip, and a green column.—*l.c.*, p. 134.

PHYSURUS VALIDUS, Rolfe.—A Peruvian species, allied to the Brazilian P. roseus, which flowered in the Royal Botanic Garden, Edinburgh, in January, 1911. The flowers are small and white.—*l.c.*, p. 134.

LIPARIS NANA, Rolfe.—A dwarf Annamese species, found on an imported plant of Cymbidium insigne, and sent to Kew by Mr. Gurney Wilson, Haywards Heath. It has dark purple flowers.—*l.c.*, 1913, p. 28.

CIRRHOPETALUM MINIATUM, Rolfe.—A charming little Annamese species, allied to C. gracillimum, and having vermilion-coloured flowers, with yellow hairs on the margins of the petals and dorsal sepal. It was imported by Messrs. Sander & Sons, and flowered at Glasnevin in September, 1910.—*l.c.*, p. 29.

CALANTHE VIOLACEA, Rolfe.—A Madagascar species, allied to C. Masuca. It was imported by Messrs. Charlesworth & Co., and flowered in their Nursery in January, 1912. The flowers are light purple, with a darker lip and a yellow crest.—*l.c.*, p. 29.

EPIDENDRUM (Nanodes) CONGESTUM, Rolfe.—A small Costa Rican species, which flowered at Glasnevin in January, 1911. The flowers are pale green, with a darker lip, and the column suffused and mottled with red-purple.—*l.c.*, p. 30.

STELIS BARBATA, Rolfe.—An ally of S. Endresii, sent from Cachi, Costa Rica, by E. Lankester, and flowered at Kew in November, 1912. The flowers are ochreous green, with rather long purple hairs on the sepals, and some red-purple on the petals and lip.—*l.c.*, p. 141.

ERIA TRILAMELLATA, Rolfe.—A species of the Cylindrolobus group, allied to E. truncata, and having light emerald green bracts, and white flowers with some light brown on the lip. It was sent from Bangkok. Siam, by C. Roebelen, and flowered at Kew in February, 1913.—*l.c.*, p. 142.

CYCNOCHES COOPERI, Rolfe.—A South Peruvian species, introduced by Messrs. Sander & Sons, through their collector Forget, which flowered and received an Award of Merit from the R.H.S. in January last. It is allied to C. pentadactylon, but differs in having light mahogany brown sepals and petals, and the lobes of the lip whitish.—*l.c.*, p. 143. (See page 261.)

ONCIDIUM BIDENTATUM, Rolfe.—Flowered in the collection of Mrs. Lipscomb, Wilton Grove, Wimbledon, who received it from her son, Mr. L. J. Lipscomb, when residing in Ecuador. It was found at Huigra in the Cactus region. It is allied to O. fasciferum, Rchb. f., and has elongate

panicles of yellow flowers with a large amount of brown on the basal half of the lip.—*l.c.*, p. 145.

DENDROCOLLA PRICEI, Rolfe.—Sent by Mr. W. R. Price from Formosa in 1912 to Kew, where it flowered in February last. It is allied to D. alba, Ridl., and has pellucid white flowers with some brown and orange on the lip.—*l.c.*, p. 145.

CLEISOSTOMA ACUMINATUM, Rolfe.—Brought from Formosa by Mr. H. J. Elwes, and flowered in his collection at Colesborne, Cheltenham, in February last. It is allied to C. breviracema, Hayata, and has greenish yellow sepals and petals, striped with brown, and a cream white lip with a little yellow at the base.—*l.c.*, p. 145.

MYSTACIDIUM GRACILLIMUM, Rolfe.—Introduced from Uganda by Mr. E. Brown, and flowered at Glasnevin in December, 1911. The flowers are semipellucid white.—*l.c.*, p. 45.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 15th, when there was a moderate display of Orchids, and the awards consisted of three medals, one First-class Certificate, and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), J. S. Moss, Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. M. Ogilvie, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, W. H. Hatcher, J. E. Shill, R. Brooman White, W. Bolton, C. J. Lucas, H. G. Alexander, A. Dye, W. H. White, S. W. Flory, and Sir Harry J. Veitch.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent the handsome Anguloa Cliftonii bearing four flowers, Catasetum Colmaniæ, a striking flower spotted with red on the expanded yellow lip, and the crest much thickened and dark brown in colour; and Odontioda Papilio, having red flowers with some white markings on the petals, a white front to the lip, and a bright yellow crest.

The Earl of Craven, Coombe Abbey, Coventry (gr. Mr. H. Chandler), sent Læliocattleya Martinetii Coombe var. (C. Mossiæ Arnoldiana × Lælia tenebrosa), having primrose yellow sepals and petals and a purple lip.

A. W. D. Oakes, Esq., Shortlands, Kent (gr. Mr. W. Fane), exhibited a fine plant of Aërides odoratum, bearing eight racemes of fragrant flowers. The plant was imported in 1908.

M. Henri Graire, St. Fuscien, Amiens, sent Odontioda Brindejonc des Moulinais (O. Devosiana × Odontoglossum Arlequin), with rather small claret-coloured flowers.

E. de Q. Quincey, Esq., Oakwood, Chislehurst, sent a well-flowered plant of Cypripedium Wiertzianum.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including Sophrocatlælia Sibyl (S.-l. heatonensis × L.-c. Haroldiana), a showy hybrid, with bronzy orange sepals and petals, and a purple lip with darker veins, Læliocattleya Ceres, Anguloa Cliftonii, Peristeria elata, two plants of Catasetum Cliftonii, Cycnoches chlorochilon, Dendrobium Dearei, a nearly white form of Miltonia vexillaria, Lycaste trifoliata, and several good Odontoglossums (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a showy group, including Oncidium Kramerianum and amictum, Vanda cœrulea, Cirrhopetalum pulchrum, Chysis bractescens, Renanthera Imschootiana, Cœlogyne Massangeana, Aërides multiflorum, Cattleya Harrisoniana, Odontioda Thwaitesii, Miltonia Bleuana, Cypripedium Maudiæ, and a few Dendrobiums (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including a noble specimen of Vanda cœrulea, with thirty pairs of leaves, and a very fine spike of pale blue flowers with darker recticulations, several good Dendrobium Dearei, Ancistrochilus Thomsonianus, Rhynchostylis retusa, Odontioda Vuylstekeæ, Charlesworthii, and keighleyensis, Maxillaria nigrescens, Meleagris, and marginata, Bulbophyllum barbigerum, Dendrochilum filiforme, Odontonia Megali Sander, Cattleya Rothschildiana, C. Mossiæ Wageneri, and some good Læliocattleyas and Odontoglossums (Silver Banksian Medal).

FIRST-CLASS CERTIFICATE.

DENDROBIUM DEAREI MCBEAN'S VAR.—A remarkably fine form, much larger than the type, and with very broad segments. Exhibited by Messrs. J. & A. McBean, Cooksbridge.

AWARDS OF MERIT.

ODONTIODA COOKSONIÆ VENUSTUM (C. Nœtzliana × O. armainvillierense).—A large and finely-shaped form, having deep scarlet flowers, with the front of the lip white and the crest yellow. Exhibited by Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander).

ODONTIODA THWAITESII PURPLE EMPRESS (C. vulcanica × O. Harryanum).—A very fine variety, having bronzy purple sepals and petals, and the lip lilac freckled with white, with the crest yellow. Exhibited by E. H. Davidson, Esq., Orchid Dene, Twyford.

PAPHINIA CRISTATA.—An old and striking species, seldom met with of late years. It is allied to Lycaste, and is dwarf in habit, and bears a short one or two-flowered scape, the flower being large, and claret-coloured with transverse white lines, and the lip purple with white hairs at the apex. Exhibited by Messrs. Charlesworth & Co.

At the meeting held on July 29th there was a moderate display of Orchids, and the awards consisted of five medals, two Awards of Merit, and two Cultural Commendations.

Orchid Committee present : J. Gurney Fowler, Esq, (in the Chair), Messrs. J. O'Brien (hon. sec.), R. Brooman White, W. Bolton, Sir Harry J. Veitch, W. H. White, S. W. Flory, W. P. Bound, J. E. Shill, W. H. Hatcher, J. Charlesworth, Walter Cobb, C. H. Curtis, T. Armstrong, A. McBean, F. Sander, Gurney Wilson, C. J. Lucas, R. G. Thwaites, Arthur Dye, and R. A. Rolfe.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), received a Bronze Banksian Medal for an interesting little group, containing four good plants of Odontioda Thwaitesii, O. Charlesworthii, Odontoglossum Harryanum and Thompsonianum, Cattleya Caduceus imperialis, a pretty light form, C. Warscewiczii Frau Melanie Beyrodt, and several other good Cattleyas.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a pretty white Aërides called A. odoratum album, Miltonia vexillaria Queen Alexandra, and M. v. radiata splendens, a fine form with racemes of seven and eight flowers.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent a small plant of Odontioda Desdemona.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent the rare Dendrobium polyphlebium, Odontoglossum Galeottianum, a dwarf Mexican species with white flowers, Bulbophyllum odoratissimum, and a plant of Maxillaria fractiflexa with six flowers.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Odontoglossum eximium var. G. Hunt, and Odontioda keighleyensis Ashstead Park var., bearing a spike of seventeen scarlet flowers, with white bars on the sepals and petals, and some deep yellow on the disc of the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a very charming group, including the rare Paphinia cristata, Houlletia chrysantha, Peristeria elata, Cycnoches chlorochilon, two beautiful examples of Miltonia Roezlii alba, one with as many as eighteen spikes, M. vexillaria superba, Cattleya Warscewiczii, Maxillaria Meleagris, Oncidioda Charlesworthii, Odontioda keighleyensis, Odontoglossum armainvillierense xanthotes, a good O. crispum, and an interesting Schombolælia from Lælia tenebrosa and Schomburgkia tibicinis (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including examples of Læliocattleya Nysa, bletchleyensis and Henry Greenwood, Cattleya Atalanta and Warscewiczii, Miltonia Bleuana, Cœlogyne Mooreana, the rare and pretty Platanthera iantha, Cirrhopetalum, biflorum, Ancistrochilus Thomsonianus, Cypripedium Kubele grandis,

glaucophyllum, and Rosetti, Trichopilia Galeottiana, Odontoglossum Wallisii, Maxillaria Meleagris, Brassocattleya elegans (C. Aclandiæ × B. Digbyana), Dendrobium regium, Lælia monophylla, Oncidium Papilio, and the allied O. Sanderæ, Anguloa uniflora, Brassolælia Gratrixiæ, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged an interesting little group, including a good example of Acineta Barkeri with two racemes, Odontoglossum percultum, a pretty hybrid from Cattleya Skinneri and Bowringiana, of intermediate character, and several good plants of Cattleya Dowiana aurea and C. Thurgoodiana (Bronze Banksian Medal).

Messrs. James Veitch & Sons, Chelsea, staged a beautiful little group of Disa grandiflora, including about sixteen well-flowered plants (Bronze Banksian Medal).

Mr. W. A. Manda, St. Albans, sent Cattleya Warscewiczii and three well-flowered plants of C. Gaskelliana.

AWARDS OF MERIT.

MILTONIA CHARLESWORTHII VAR. MRS. RALLI (Hyeana × vexillaria memoria G. D. Owen).—A charming pink flower with darker pink spots at the base of the lateral sepals, and a large triangular dark crimson mask at the base of the lip. Exhibited by Pantia Ralli, Esq.

ODONTOGLOSSUM QUEEN ALEXANDRA VAR. THEODORA (triumphans × Harryanum).—A fine form, bearing a spike of eight flowers, with yellow sepals and petals heavily blotched with chocolate brown, and the lip white with a large purple blotch and many basal spots. Exhibited by de Barri Crawshay, Esq.

CULTURAL COMMENDATIONS.

ANGRÆCUM EICHLERIANUM.—To Messrs. Charlesworth & Co., for a very fine specimen, over three feet high, and well furnished with flowers from the base to near the apex, the number of spikes being seventeen.

HABENARIA RHODOCHILA.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., Burford, for a beautiful group of two dozen well-grown plants arranged in a large circular pan, and producing a very charming effect.

CYCNOCHES FORGETII, Rolfe.—Another interesting Peruvian Cycnoches has just flowered with Messrs. Sander & Sons, St. Albans. It belongs to the section Heteranthæ, but differs from C. peruvianum, Rolfe, in the absence of purple spots on the sepals and petals and in the rather short, broadly oblong segments of the lip, these not being slender and capitate as in most of the allies. The sepals and petals may be described as light green with a suffusion of pale reddish brown, and the lip as dull glaucous-green. These flowers are, of couree, males. R.A.R.

MILTONIA SANDERÆ.

WE are indebted to *The Garden* for the opportunity of figuring the handsome Miltonia Sanderæ (M. St.-Andre × vexillaria memoria G. D. Owen),

Fig. 56. MILTONIA SANDERÆ.

for which Messrs. Sander & Sons received a First-class Certificate at the recent Holland House Show. Its characters are given at page 247. It is a brilliant acquisition.

CALENDAR OF OPERATIONS FOR AUGUST.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE temperatures and the conditions as given in the May number may still be continued, and the remarks there made respecting watering, ventilation, and atmospheric moisture still apply. The atmospheric condition of the houses is one of the chief items in the cultivation of all Orchids, and this must be maintained in a sweet and healthy condition at all times, otherwise the plants cannot thrive. The recent warm, bright weather has suited the inmates of the warmer division, and the plants during the last few weeks have made rapid strides. Everything must now be done to encourage growing plants to develop and build themselves up as speedily as possible.

During the present month we often have the hottest and driest weather of the whole year, therefore shading and watering must have the closest attention, for if the plants are to grow satisfactorily their needs must be anticipated and every requirement satisfied. It is a good practice to give those plants that are grown in the warmer houses rather more air at this season, counteracting its drying influence with rather more atmospheric moisture, thus enabling the plants to solidify themselves, so that they may be thoroughly ripened before the cold, sunless winter months are upon them. The weather we have had this season is in strong contrast to that of last year, and undoubtedly the plants will show at the next time of flowering a like contrast in their vigour, and the abundance and quality of their flowers.

COCHLIODAS and ODONTIODAS.—Although the genus Cochlioda is small, it has, through its hybrids, exerted a great influence in our collections. Crossed with Odontoglossum it has brightened our Cool houses almost to the point of rivalling the Cattleya house for brilliancy of colour, and as time goes on still greater strides will be made with these favourite plants, which can all be grown in a Cool house, and are consequently great acquisitions. They succeed under the same conditions as Odontoglossums, and should be grown in shallow pans suspended or raised well up to the light the whole year round. They are little subject to insect pests; like all Cool house Orchids, thrip is their arch enemy, and this must be kept at bay. Mild fumigations at regular intervals is the safest and best plan to adopt, as prevention is better than cure. The plants are rather erratic in their time of growing and flowering, and where many are grown there are nearly always examples in bloom. The majority are now making their growths for next year's flowering, and when these young growths are about to push forth roots is the best time to give new rooting material to any that may be in need of it. They should be treated like Odontoglossums, and a similar compost will satisfy their requirements.

MILTONIODAS and ONCIDIODAS.—Other bigeneric hybrids having Cochlioda for one parent are Miltonioda and Oncidioda, and will be much sought after as they become more plentiful. In the cultivation of these bigeneric Orchids it is always safe to take the treatment of the predominating partner in the plant, that is, the parent which the plant in question most resembles. The Miltoniodas require more heat than the Oncidiodas, and the former are best treated as Miltonias, the latter as Oncidiums. The whole of these plants appear to have capabilities of making fine specimen plants, and when this is assured the effect will be wonderful.

CŒLOGYNES.—Plants of C. cristata and its varieties are making rapid growth, and well-established specimens must not be allowed to suffer for want of water. Plants which have recently been disturbed should be watered sparingly until the new roots have become established in the compost. These cool-growing Cœlogynes should never, in their growing season, be exposed to a dry atmosphere; a damp situation is greatly to their liking whilst in growth.

CŒLOGYNE PANDURATA.—Any plants which have passed out of flower, and which have outgrown their receptacles, may have new rooting material afforded them, provided they are pushing new roots from the base of the partly-made pseudobulbs. Owing to its rambling nature, this is a somewhat difficult subject to keep in a limited space, therefore the old back bulbs should be taken away whenever repotting is done. A similar compost to that used for the green-leaved Cypripediums will answer its requirements. There are other Cœlogynes which, like C. pandurata, thrive in the Warm house, and may also have attention as regards repotting should they be in need of it.

CALANTHES.—The deciduous Calanthes, having now filled their pots with roots, must have more water, with occasional waterings of weak liquid-manure. This must not be given them too strong, as many cases of disease are attributable to excessive feeding. It is important that the plants should receive as much light as possible without being scorched by the sun. They should be grown near the roof glass, and be allowed plenty of fresh air, which consolidates the growth as it is made.

CYPRIPEDIUMS of the winter-flowering section are now in full growth, and should be freely supplied with water at the roots, and on bright days may be sprayed overhead. They may receive a supply of fresh air on every favourable occasion, and on warm nights a little ventilation will be beneficial. When these plants are grown in a hot and close atmosphere the foliage is limp and soft and the flowers weak.

LÆLIA ANCEPS and its varieties are fast developing their pseudobulbs, and the flower spikes are also pushing up freely. Liberal supplies of water

at the roots and slight syringings may be afforded them during hot weather. These plants should not be shaded excessively, as they are sun-loving plants, and only sufficient shade should be given them to prevent scorching. The house should be shut up early in the afternoon to raise the temperature considerably. It may then be opened again during the night, as the night air is beneficial to these plants. To sum up the cultivation of these plants in a few words, it is warm days and cool nights that they require. These Christmas-flowering Orchids are worth any amount of pains to flower them satisfactorily.

CATTLEYAS, LÆLIOCATTLEYAS and allied subjects should be potted, as previously advised, whenever they are in need of it and are pushing new roots. I may appear to dwell upon this point to a great extent, but I am firmly of the opinion that many Cattleyas have been lost in the past by being overhauled at a season when they would have been better left alone. In such an extensive family as this it is obvious that they are not all in a fit condition to repot at any one season of the year. Plants of C. Bowringiana and its hybrids that are in full growth require plenty of water at the roots until the new pseudobulbs are formed. Care must be taken that the water does not settle in the bracts or sheaths which encircle the bottom of the young pseudobulbs, which is peculiar to this section of Cattleya, as such accumulation of water often means the loss of the bulb, with its flower spike, and in some cases may mean the loss of the plant. The cultivation of all Cattleyas is so simple, and the treatment of one species so much like the others—with the exception that they require this treatment at a different season—that I am at a loss to understand why they should be considered difficult subjects.

PLEIONES.—The various Pleiones, as they complete their growth, should be exposed to more light, and be allowed more air than heretofore, but should receive sufficient water at the roots to keep the compost moist and the bulbs plump until the foliage falls. After this occurs they will need water in very limited quantities until the flower buds appear, when the supply should be increased until the flowers are fully developed. After the flowers have faded the plants require sufficient water to keep the pseudobulbs from shrivelling until they commence to grow in the spring. The cooler-growing species, P. Hookeriana and P. humilis, must still have liberal supplies of water at the roots until their season's growth is completed.

MILTONIA VEXILLARIA AND ITS HYBRIDS.—Towards the end of the month those plants which flowered early in the season will have commenced to grow vigorously, and those in need of fresh rooting material should have attention. The repotting of this family is best extended over this month and the next, as it is possible to have some one or other of them in bloom right through the summer months, therefore it is quite obvious they are not

all ready to pot at one time. The autumn-flowering varieties are best left over until the early spring months before repotting is attempted. A similar compost to that used for Odontoglossums will answer their requirements, and a suitable position for them is a moist position in the Intermediate house. M. Bleuana should be found a slightly warmer position than M. vexillaria, whilst M. Roezlii, and its variety alba, should be found a position in the warm Intermediate house.

PHALÆNOPSIS.—The large flowering varieties, such as P. Schilleriana, P. Aphrodite, P. Stuartiana, P. Sanderiana, and the free-growing P. amabilis Rimestadiana, owing to the favourable season, have made considerable progress with their new leaves. A high sun-heated temperature is always to their benefit. During the warm weather every opportunity should be taken to ventilate the house in which they are growing, as a daily supply of fresh air is important. It is advisable that the house should be shut early in the afternoons, thoroughly damping the floors and staging, and everything under and about the hot water pipes. The temperature should be maintained at night as nearly as possible from 70° to 75°, and should the temperature fall lower no damping down should be done until the former figure is reached. The chief causes of failure with these plants are a low, damp atmosphere and saturated sour material at the roots.

ODONTOGLOSSUMS.—Towards the end of the month, should the weather not be too hot, a commencement can be made with the repotting of these plants. Take each plant as it gets into the desired condition, and should there be any likelihood of the compost becoming decomposed, don't hesitate to repot, as these plants cannot thrive in sour compost. A compost as previously advised for this genus will be found quite satisfactory.

DENDROBIUMS.—During the present month many of the Dendrobiums, especially those of the D. nobile section, will be completing their growth. It will be necessary to examine them frequently, in order that those which have completed their growth, and have the terminal leaf fully expanded, may be removed to a cooler and dryer atmosphere, where they will receive the benefit of more light and air. They should be exposed gradually to full sunshine in order to thoroughly mature the newly-made growths, and should receive sufficient water to keep them plump.

GENERAL REMARKS.—We are fast reaching that season of the year when we shall have to make preparation for the safe keeping of the plants during the winter, and it will therefore be advisable to put everything that is considered faulty in the heating apparatus, or other things appertaining to the successful working of the houses, in thorough repair. The work for the month will consist of the usual routine of potting and cleaning, and

attention to the different matters which makes for the general health of the plants under our charge. No armistice must be allowed to those foes which infest our plants and houses, and every means must be taken for their destruction.

ORCHIDS AT BRISTOL.

Some fine Orchid groups were staged in the Horticultural section of the Royal Agricultural Society's Exhibition held at Bristol from July 1st to 5th last.

In the class for a collection of Orchids arranged for effect in a space of 100 square feet the first prize was awarded to Messrs. Armstrong & Brown, Tunbridge Wells, and the second to Messrs. James Cypher & Sons, Cheltenham, both staging brilliant groups.

Among non-competitive exhibits the outstanding feature was a magnificent group of Orchids staged by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), in which the Cattleyas, Lælio-cattleyas, and Odontoglossums were especially brilliant. A Large Gold Medal was awarded.

A Gold Medal was awarded to Messrs. Stuart Low & Co., Enfield, for Orchids, Roses, and Carnations.

A Silver-gilt Medal was awarded to Messrs. A. J. Keeling & Sons, Bradford, and a Silver Medal to Lt.-Col. Cary-Batten, Leigh Lodge, for good groups of Orchids.

A deputation from the Royal Horticultural Society was present and made the following awards for Orchids:—

A Gold Medal to Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander).

A Standard Cup to Messrs. Armstrong & Brown, Tunbridge Wells.

Silver Banksian Medals to Lt.-Col. Cary-Batten, Leigh Lodge, Bristol, and Messrs. A. J. Keeling & Sons, Bradford.

Cycnoches Cooperi.—When this striking novelty was described it was remarked that the female flowers were as yet unknown, also that the plant had passed into the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester. Mr. Fletcher now writes that the plant is in flower again, this time producing three good female flowers, one of which is sent to us. The colour is chocolate-brown, and on comparison with C. pentadactylon, to which the species is most allied, we find that the female of C. Cooperi is rather larger, and the segments relatively rather more acute. The female of C. pentadactylon is green with some very dark brown blotches on the base of the segments. Mr. Fletcher must be congratulated on having obtained the other sex so quickly.—R.A.R.

SCHOMBURGKIA THOMSONIANA.

A PLANT of this striking Schomburgkia, that was recently sent from the Grand Cayman Islands, West Indies, by Mr. T. M. Savage English, has just flowered at Kew, producing a panicle of light yellow flowers with the front lobe of the lip very dark purple. Two dried flowers were also sent, with the following interesting note :—

"I do not think that there is more than one species here, but it is most variable in size and colour. It may have a spike a few inches long with two flowers, or even one, or the spike may be as long as six feet six inches with fifty-eight flowers. This is the largest I have found, and the bulb had five leaves. Its colours may be white, cream, lemon, orange, lilac, or dull pink mixed with yellow (like some tea roses), with the lip ranging from comparatively pale purple to almost black. It is scented in the morning only—like lilac—though many plants have scentless flowers, and this seems to have no reference to their colour. The plant is very common here. I enclose two flowers, the larger white and the other lemon."

This throws a somewhat new light on the history of the species, which has already been given in detail (*O.R.*, ix. pp. 325, 326). It was originally described by Reichenbach in 1886, at which time nothing was stated about its habit, though two years later a Schomburgkia collected by Mr. W. Fawcett, F.L.S., in the Cayman Islands was sent to Kew and identified with S. Thomsoniana. A living plant was also sent, which afterwards flowered and was figured in the *Botanical Magazine* (t. 7815). In the meantime materials were collected by Dr. Strachan, who distinguished two varieties, albopurpurea and minor, the former apparently agreeing with the original type. Both were found in Grand Cayman, but Dr. Strachan only collected the variety minor in Cayman Brac, a small group of islets about 100 miles distant from Grand Cayman, where also Mr. Fawcett's plants, corresponding to the variety minor, were obtained. The living plant sent by Mr. English belongs here, and agrees well with the one figured except in having paler yellow sepals and petals.

The significance of this remarkable variation in Grand Cayman remains to be explained. Such a condition of things is parallelled among hybrids, and it may be that here the two forms, considered distinct, by Dr. Strachan, both in colour and size, hybridise together. Further observations would be interesting, especially as to whether the larger form is absent from Cayman Brac, and what variations occur there. In Grand Cayman Dr. Strachan remarked that the larger variety was the most abundant, and he makes no mention of any other variation.

S. Thomsoniana is allied to S. tibicinis, Batem., but has smaller and usually more numerous flowers, of different colour.

R.A.R.

MOSQUITOES POLLINATING ORCHIDS.

A NEW use for mosquitoes is described in a recent issue of *Science* (xxxvii. p. 867) by Mr. John S. Dexter, of Columbia University, U.S.A. He remarks:—

"Early in July, 1912, Miss Ada K. Dietz, who was doing research work in plant ecology at the University of Michigan Biological Station at Douglas Lake, told me that she had seen in Ree's Bog a mosquito bearing on its head two small yellow masses that looked like pollen. I went to the bog and found many mosquitoes there. In a few minutes I had caught a half-dozen or more, all of them females, bearing the yellow masses. On closer examination these proved to be pollinia of the Orchid Habenaria obtusata (Pursh.), which was at one time abundant in the bog and in full bloom. Most of the mosquitoes carried one pollinium, some had two or three, and one had four pollinia attached to its eyes.

"This Orchid is small, green, and inconspicuous, but very similar in the structure of its flower to *Orchis mascula*, described by Darwin in his book on the *Fertilization of Orchids*, and by Müller in *The Fertilization of Flowers*. Also, the complex process of pollination as described in the last-named book (p. 535) for O. mascula might apply almost unchanged for *H. obtusata* with mosquitoes instead of bees for the pollen-bearers.

"I gathered a number of the plants and a few mosquitoes that were free from pollinia and put them together in a glass aquarium jar. In a few days the mosquitoes had removed most of the pollinia from the flowers and now bore them on their eyes exactly as had those caught outside.

"I did not learn the name of the mosquito concerned. It was probably not Culex pipiens, which is mentioned by Müller as a visitor to the flowers of Rhamnus Frangula. So far as I know, this is the only case reported in which mosquitoes seem to be of primary importance as agents of pollination."

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during August, on the 12th and 26th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on August 21st. The Committee meets at noon, and the exhibits are open to members and the public from 1 to 4 o'clock p.m.

GIFT OF ORCHIDS BY SIR GEORGE HOLFORD.—The last issue of the

Kew Bulletin remarks: "The Kew collection of Orchids has recently been greatly enriched by the gift of about 150 large plants of Cattleya, Lælia, Læliocattleya, Brassocattleya, Cymbidium, and Cypripedium by Lt.-Col. Sir George Holford, from his famous collection at Westonbirt. While the collection of Orchids cultivated at Kew must be essentially botanical, its main object being to represent the family in as comprehensive a way as possible, the great progress made in recent years in the breeding of hybrids, many of which are botanically interesting as well as possessed of exceptional claims as garden plants, necessitated the addition of a selection of them to the collection. Increased accommodation was provided last year by the erection of an Intermediate house adjoining the T-Range, and, thanks to Sir George's generosity, Kew now possesses some of the best of the Cattleyoid hybrids."

CLEISOSTOMA SECUNDUM.—This pretty little Burmese species, which was described six years ago (Rolfe in *Kew Bull.*, 1907, p. 132), has again flowered at Glasnevin. It was introduced by Messrs. Hugh Low & Co., who first flowered it, and from whom the Glasnevin plant was obtained. The flowers are borne in one-sided racemes, some four to six inches long, and are light purple with a darker front lobe to the lip. It much resembles a Saccolabium, but has a characteristic 2-lobed callus on the foot of the column, closing the orifice of the lip. The leaves are narrow, fleshy, and four to six inches long.—R.A.R.

ORCHID PORTRAITS.

CYMBIDIUM EBURNEO-LOWIANUM (well-flowered).—*Journ. Hort.*, 1913, i. p. 606, with fig.

LÆLIOCATTLEYA GOTTOIANA THE PRESIDENT.—*Gard. Mag.*, 1913, p. 500, with fig.

MILTONIA SANDERÆ.—*Garden*, 1913, p. 352, with fig.

ODONTIODA HARWOODII FOWLER'S VAR.—*Gard. Mag.*, 1913, p. 521, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.C.—Thanks for name, which we will record next month.

S.F., E.F.C.—We will examine and report.

A.J.K.—Letter follows.

Photograph received with thanks.—Mrs. R.

Catalogue received.—We have received from W. A. Manda, S. Orange, New Jersey; a Catalogue of Novelties and Specialities, including a photograph of a Cattelya House in the establishment.

Erratum.—The Odontoglossum figured at page 208 under the name of Odontoglossum crispum Fletcheri should have been O. crispum Robertsii. Please correct.

THE ORCHID REVIEW.

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OUR NOTE BOOK.

THE following deserves a more permanent record than the columns of the daily press, whence it was culled for our benefit. The occasion was the appearance of what is called "the new Princess Mary Orchid," whose portrait appears at page 176. We have omitted a few lines at the end which did not relate to Orchids :—

THE ORCHID BUILDERS.

THE BREATHLESS ROMANCE OF THE NURSES OF NEW FLOWERS.

NATURE is not, on the whole, a gardener. She does splendidly with blue-bells in the spring, with wild roses in the summer, and berries in the autumn; but, on the whole, she is too slapdash and fluky and parochial for the average gardener's tastes. Her methods are not ambitious enough. Human gardeners have been trying for untold generations to show her how to make the most of her astonishing material.

This is especially so to-day with Orchids. Nature does not grow Orchids as men do. When she produced an Orchid, say, in South America, she probably thought she had done very well; but men were not satisfied with that. They got another Orchid from Brazil, put the two together, and produced a third—more beautiful than either of the original ones. Nature remains content with bees or other insects for reproduction, and they, unfortunately, do not care to travel thousands of miles in the interests of horticulture.

But professional Orchid growers think nothing of travelling over a whole continent to look for Orchids, and one result is that two plants which grow in a wild state 4,000 miles apart may find themselves neighbours in a Chelsea glasshouse—and not only neighbours, but in the surprising position of being parents of a third Orchid, an entirely new plant, of amazing form and colour, which unaided Nature could never have produced.

This making of Orchids is one of the few romantic trades left. In distant countries collectors wander about for months, climbing mountains, exploring the banks of rivers, and going into wild places where men have hardly ever been before. When they find a new Orchid they carefully dig it

up, or take the seed pod, and when they have found enough they send them back to England. There they are nursed in glasshouses, where the soil and temperature are made as nearly as possible the same as in their homes, and in a few years two specially fine plants are selected to become parents of that triumph of the gardener—a new Orchid.

This improving on Nature is a long business. When the pollen is transferred from one flower to another—an office performed in the ordinary way by some insect—the flower quickly withers, and then gradually produces a large seed pod containing in six months or so thousands of little seeds. When the pod bursts the seeds are collected and sprinkled on the surface of a mossy soil under growing plants, just as in a wild state the seeds fall on to the ground. Soon the seeds swell, and in due time they are removed into roomier quarters, and eventually promoted to a pot each. But it is years before they flower, and the gardener who is anxious to see what he has produced may have to wait six years to know.

But although it is a slow business it is a very exciting one. The grower never knows what flower he will produce. For all he knows it may be yellow or green, or white, big or small, round or pointed. Even flowers that have come out of the same seed pod are never exactly the same. They will have a family likeness, but there is always some difference. Sometimes the grower fails. The offspring of two magnificent parents may be a poor weedy thing fit only to be thrown away, and then the care of years is wasted. But usually the grower can rely on getting a good plant when he is content with parents that are thoroughbreds, or at any rate are not the result of several crosses. Nature rebels after a time, and can be improved upon only up to a certain point. Beyond that point she refuses to go, and the skill of the grower is in knowing exactly how far he may take liberties, and, of course, in selecting plants that are most likely to produce a beautiful and healthy offspring.

The skilled grower is really a creative artist who uses the materials which Nature has given him as a painter uses his brush. He is always trying to produce something new, and every year he has his successes and his failures. His anxious moments are when after, say, six years the bud of an Orchid opens and he sees what he has created. It may be a weed, or it may be a triumph of form and colour which will be hailed as the Orchid of the year.

After the little disquisition on Nomenclature given last month, the ollowing note in the *Gardeners' Chronicle* for August 2nd naturally caught our eye :—

"HOW PLANTS ARE NAMED.—The following conversation between two experts took place at a recent fortnightly meeting of the R.H.S. : A.:

'Have you ever seen this plant before?' B.: 'I don't think I have; it appears to be something new.' A.: 'I know it is new, as it comes from a place where no collector has ever been. No one here knows it.' B.: 'How did it get the name it bears?' A.: 'Oh, I named it, as the Society will not look at a plant that is unnamed.' B.: 'Have you tried Kew?' A.: 'It is no use sending plants there, as they give them any kind of name; they won't bother.' B.: 'But they will. The collections of living and dried plants are maintained to enable them to identify plants, and I know they do a lot of it.' A.: 'I wouldn't ask them. I would rather name my plants myself.' B.: 'Then you would most likely make a mistake. It doesn't follow because a plant is not known to cultivators that it has not already been named by someone competent to do it.' A.: 'Surely when I introduce a new plant I have the right to name it?' B.: 'But you must first find out if it is new and nameless.' A.: 'Well, I know this is new.' B. took particulars of the plant, went to Kew and found that it was well known there, a figure of it having been published in the *Botanical Magazine* a few years ago.—*Eavesdropper.*"

Now we were a little curious to know what this plant might be, and a judicious inquiry served to reveal its identity. On looking the matter up we find that B. might have scored another point, for not only was a new name unnecessary, but the one chosen consisted of three words, a practice which is contrary to the rules. The matter may be read in connection with a note at page 235. Happily the plant is not an Orchid, so we will conclude by saying—Horticultural Papers please copy.

ORCHIDS AT BRUSSELS.

MM. A. A. PEETERS & FILS.' ESTABLISHMENT.

SINCE our previous visit to Brussels, five years ago, the establishment of MM. A. A. Peeters & Fils. has been moved from St. Gilles to Laeken, where a fine block of twenty-seven new houses has been erected on the latest principles, and these we have now had the pleasure of seeing.

We first inspected a fine series of Miltonia vexillaria hybrids, obtained from several fine varieties crossed with the handsome M. v. memoria G. D. Owen. There were some 500 plants, mostly in flower or spike, and showing much variation in colour, but without reproducing the remarkable crimson mask of the pollen parent. Some of them had an orange brown disc to the lip, while others resembled the typical form. Examples of M. Bleuana (vexillaria × Roezlii) were in bloom, but M. Peeters has also seedlings derived from the reverse cross, M. Roezlii being the seed parent, and these are not such strong growers, having more of the Roezlii character. These are known as M. Bleuana var. Peetersiana. M. Bleuana × M. vexillaria

Leopoldii was also in spike, and plants of this cross have flowered. A few capsules were noticed, and a seedling Odontonia Lambeauiana (M. Warscewiczii × O. Lambeauianum) was pointed out. Here were two nice plants of the miniature Saccolabium fragrans, one of them being in bloom. They have been here for seven or eight years, having been found in an importation of Vanda cœrulea. The latter species is represented in quantity, some being old plants and over two feet high, and M. Peeters remarked that plenty of light and air was the secret of success.

Coming to the Cypripediums we found a remarkably fine batch of C. Rolfei, the plants being grown in pure loam, M. Peeters remarking that this is the only way to grow and flower them well. They are stood on tiles, and great care is taken not to get the compost too wet, which is considered highly important. The leaves are handsomely mottled, and and one of the largest measured nearly a foot long. Last season as many as 150 plants were in bloom together, some of them having six spikes, and forming a magnificent sight. M. Peeters remarked that C. Rolfei is a bad parent. It was hoped to utilise so fine a thing in hybridising, and many crosses with C. Maudiæ, both as seed and pollen parent, have been made, but in no case has a seed been found. A few of the summer-flowering kinds were in bloom, including a seedling of C. Schlesingerianum × Fairrieanum, the latter being of good shape, with a richly-blotched dorsal sepal.

One side of a Cypripedium house was filled with the brilliant Renanthera Imschootiana, many plants being in bloom. Both it and Vanda cœrulea are grown in leaf mould, with a surfacing of sphagnum, and very carefully watered. They are treated much alike, except that the Renanthera likes a little more heat than the Vanda. Here a good plant of Cattleya labiata Peetersiana was pointed out, which came out of Messrs. Sander's first large importation over twenty years ago.

After passing through a house of seedlings in excellent health, where we noticed a Vanilla trained on the roof, we came to a fine lot of Phalænopsis amabilis Rimestadiana, some of them finely in bloom, and here an interesting albino was pointed out. It was not in bloom, but the lip is said to be without a trace of purple markings. A flower was self-fertilised, and produced a capsule, but it contained no seed, and the plant was severely checked by the operation. A good P. Sanderiana was also in bloom. The compost used for Phalænopsis is composed of equal parts of polypodium fibre, sphagnum moss, and leaf-mould, and these plants are in thriving condition. Here was also a fine batch of Oncidium splendidum growing in leaf-mould, and the plants were as clean and sturdy as any one need wish to see. Some of them have been grown for fifteen years, A lot of O. Kramerianum at the end of the house bore about three dozen spikes, making a fine show.

Passing along the Corridor we noticed some Cypripediums in bloom. These were obtained from C. Maudiæ × C. insigne Sanderæ, and the reverse cross, but all reverted to coloured forms, and M. Peeters remarked that there was not a single albino in a large batch.

We now passed into a house of Brassocattleyas and other Brassavola hybrids, all from choice crosses and in robust health. We noticed a good B.-c. Veitchii in bloom.

Coming to a series of four Odontoglossum houses, we noticed many interesting things in flower or spike, including a lot of seedlings showing remarkable variation. Seedlings from O. crispum Madouxianum, which is a very dark form, had in many cases much white in the flower, and were variously blotched, but none were equal to the original form. O. c. Madouxianum × O. c. Mariæ showed a remarkable range of variation, including both white, rosy, and blotched forms, and O. c. Mariæ × O. c. Luciani also contained both white and dark forms. Many seedlings of O. Fascinator × O. c. Madame Valcke were in bloom, and varied enormously in the amount of spotting. Some of them would pass for O. Adrianæ were the origin not known, while a few others were unspotted, including both yellow and rosy forms. Among more familiar things in bloom were forms of O. crispum Lambeauianum, excellens, triumphans, &c., with a few Odontioda Bradshawiæ and others. Here were also seedlings of O. Vuylstekeæ recrossed with C. Nœtzliana, and a lot of other Odontioda and Odontoglossum crosses, the seedlings being very numerous and in thriving condition. A lot of O. crispum from a very old importation were pointed out, but these were not in bloom.

The Cattleyas formed a fine series, and we noticed a couple of C. Mossiæ Wageneri in bloom, with various others, and a fine lot of seedlings, but these and other interesting things must be passed over. The establishment is in excellent condition, and a high standard of culture is maintained. The use of spent tobacco stalks upon the hot water pipes is said to be an excellent preventive against thrip, and it is unfortunate that the duty on tobacco prevents this excellent system being adopted in England. Hybridising is carried on extensively, only the finest forms being used as parents, but the many promising crosses must pass unnoticed till they bloom. We congratulate Messrs. Peeters on the excellent condition of the establishment generally.

M. DELANGHE VERVAENE'S NURSERY.

One of the things specially impressed upon us by M. François Peeters was the importance of visiting the establishment of M. Delanghe Vervaene, the originator of the leaf-mould culture of Orchids, who still remains loyal to the system. We had no difficulty in finding the way, and were welcomed by a gentleman with a handful of Cattleya flowers, who proved to be M.

Delanghe himself. Our credentials being in order we were quickly introduced to the objects of our search, and we were frankly surprised. We had almost forgotten that as long ago as 1898 we had seen at the Ghent Quinquennial Exhibition the first-prize plant of Oncidium sarcodes, with a spike five feet high, also a group of five similar plants, all exhibited by M. Delanghe Vervaene, of which we remarked that they were grown in leaf-mould, and potted like ordinary plants, with a few crocks at the bottom of the pot (*O.R.*, vi. p. 140). We also recalled the fact that some twelve years ago a Commission was appointed by the Société Nationale d'Horticulture de France to report upon the question, and that a summary of its report appeared in our columns (*O.R.*, ix. pp. 321-324). But we retained a vivid recollection of the fact that the system had been tried in England, and was generally voted a failure. In the presence of plants, however, that were not only alive after fifteen years of the treatment, but also strong and healthy, and flowering freely, scepticism was at an end, and we felt a strong desire to understand a little about the matter. And now we will follow our notes.

About twenty houses are devoted to Orchids, which are grown for cut bloom. In the first house entered we found a lot of sound healthy Cattleyas of the labiata group, with a number of Lælia purpurata varieties, Lælio-cattleya Canhamiana, Aphrodite, and others, with sturdy plants of Oncidium splendidum on the side stages. A good number of Cattleyas were in spike or flower, especially Cattleya Mossiæ and Mendelii, and the quality was excellent. Pots of fairly large size are used; a large crock is placed over the hole, and the compost, which consists largely of decaying beech leaves with a few oak leaves, is pressed in very firmly, and the work is then completed for two or three years. The watering seems to be the one important matter, and this M. Delanghe does entirely himself, but so seldom is it considered necessary that the compost decays very slowly, giving a steady supply of nutriment to the roots, which remain in a sound healthy condition. Of this we had ocular demonstration, for M. Delanghe knocked some plants out of the pots to show us the condition of the roots. An adequate amount of moisture in the atmosphere is considered of the highest importance, with ample ventilation, and lath roller blinds are largely used for shading.

There are Cattleyas in the collection that have been there twenty years, and one fine form of C. Trianæ is now represented by over forty plants, obtained by dividing one original one. Some of the Læliocattleyas are said to grow and flower twice a year. In such a business a succession of flowers is important, and in some cases this is secured for six weeks by keeping the plants in different conditions. The succession is further secured by selecting batches of the species which flower at different seasons of the year.

The two Læliocattleyas mentioned were raised in the collection, and there is a lot of seedlings. C. Harrisoniana has been crossed with nearly all the species of the labiata group, and some of them have flowered. C. Harrisoniana × Schrœderæ is a pretty pink hybrid with some yellow on the disc. C. granulosa × Warscewiczii is also thought much of.

Cattleyas are extensively grown, houses being largely devoted to C. Trianæ, C. Gaskelliana, and C. Harrisoniana, while another contains various choice varieties, all in vigorous health, and we noticed many with double breaks. It may be added that M. Delanghe does not care to see the roots outside the compost, where he thinks they are not getting enough nutriment.

Oncidium splendidum is grown in quantity, strong, sturdy plants, with clean healthy leaves, in some cases over ten inches long, and the compost apparently very dry. There were also many O. varicosum and a few O. sarcodes, with sturdy plants of O. macranthum. A house of Odontoglossum crispum and Pescatorei contained many plants in spike or bloom. The plants were grown on a bed of cinders, but do not compare with the others in point of vigour. One house contained Vanda cœrulea and Odontoglossums, while another was largely devoted to Cypripedium insigne, with O. crispum at the end.

It was very interesting to see the original home of a method of culture that has been so much discussed, and if any lesson was learnt it is that everything depends upon the watering. Probably M. Delanghe could grow Orchids in the more orthodox composts, but at least he has learnt how to use leaf-mould as a substitute, with a good deal of success. Perhaps the method is not one for ordinary mortals—it is too much like conjuring.

BRUSSELS BOTANIC GARDEN.

A fine collection of Orchids is grown at the Brussels Botanic Garden, for not only are three houses set apart for their culture, but others are grown in an ecologic collection, where they are grown with aroids, ferns, and various other epiphytes, on trunks and branches of trees to imitate the way they occur in nature, and besides these a lot of Congo Orchids, with a few Malayan species, are grown with ordinary stove plants, where they thrive exceedingly.

Many interesting things were in bloom in the general collection, where we noticed a fine example of Gongora bufonia with three spikes, G. galeata, Lycaste aromatica and xytriophora, Dendrobium fimbriatum oculatum and Brymerianum, the rare Acanthophippium sylhetense, Sarcanthus pallidus, a fine plant of Cymbidium Lowianum, Mormolyce lineolata, Epidendrum variegatum and ionosmum, Cœlia Baueriana, a fine plant of Physosiphon Lindleyi, Lælia majalis, the rare Acineta Hrubyana in spike, and many others, including some of the more familiar species which we did not note. Oncidium was represented by examples of O. flexuosum, Gardneri, concolor,

Marshallianum, graminifolium, Harrisonianum, and phymatochilum, and Maxillaria by M. Binoti, Meleagris, variabilis, and Fernandiana. Of Cypripedium we noted C. Lowii, barbatum, villosum, and various others, including the interesting C. Frankeanum, whose history was given at page 179. Some small seedlings of *Zygopetalum* × Lycaste were pointed out, and it will be interesting to see what they are like when they flower.

In a small Cool house we noted in bloom several examples of Pleurothallis stenopetala, the remarkable P. platystachys, Grobyi, prolifera, Lansbergii, and cuneifolia, Octomeria diaphana, Scaphosepalum ochthodes, Masdevallia infracta, and various others, with the brilliant Sophronitis grandiflora. Many interesting things were pointed out not then in bloom, and we must pass them over.

The ecologic house was particularly interesting, for here one might see various epiphytes growing in something like natural conditions, these including aroids, ferns, and similar plants of habit, with of course many Orchids. Among those in flower were Phalænopsis Lueddemanniana, Gongora bufonia, Anguloa Ruckeri, a fine Epidendrum Parkinsonianum, Stelis omalosantha, Maxillaria Fernandiana, with a good many not in bloom. Most of the plants seemed as much at home as when in pots, and the effect was very realistic.

Lastly must be mentioned the Congo species, and a few others from the Malayan region which grow in a similar climate. These are grown in the warmest house in the garden, in a stove temperature, with aroids and other heat- and moisture-loving plants, and were thriving amazingly. The point is emphasized, because formerly an attempt was made to grow them in the ordinary Orchid houses, where they made little progress, and some were with difficulty kept alive. There were several plants of Dipodium pictum in bloom, a really striking Orchid, the remarkable Madagascar Aëranthes grandiflora, Mystacidium distichum, Phalænopsis Lueddermanniana, the distinct Bulbophyllum Gentilii, Polystachya mystacioides, polychæte, affinis, mayombensis, and Laurentii, with a number of others not then in bloom. A good many of those from the Congo are types of species described by Dr. E. de Wildemann, Director of the Garden, and thus are of special interest. Several plants of the striking Sumatran Cirrhopetalum campanulatum were pointed out, the flowers being just over, and on one of them we counted as many as sixteen old spikes. Vanilla Lujæ, Laurentiana, and grandiflora are represented by large plants which have not yet reached the flowering stage.

The collection shows a marked improvement on what we saw five years ago, and its present condition reflects the greatest credit on the Curator, M. Louis Gentil, and his assistants, who find the usual difficulties in growing such a varied collection in few houses.

THE REICHENBACHIAN HERBARIUM.

THE sixth of May next will witness the twenty-fifth anniversary of the death of Professor H. G. Reichenbach, the successor of Dr. Lindley as the great authority on Orchids, and the near approach of the event serves to

Fig. 57. THE LATE PROF. H. G. REICHENBACH.

recall an action which staggered the scientific world, and struck a cruel blow at the progress of Orchidology for the time being; we allude to the late Professor's act in sealing up his entire herbarium and collection of

drawings for a quarter of a century. The consternation caused by this malicious act still remains fresh in the minds of some of our readers.

Professor Reichenbach died on May 6th, 1889, and an appreciative Obituary notice appeared in the *Gardeners' Chronicle* for May 18th, in which the deceased's long services to Orchidology were alluded to in highly appreciative terms. We may repeat the following paragraph as to the man and his work :—

" Reichenbach was possessed of remarkably distinct individuality, which was as remarkable as his curiously crabbed handwriting which few could decipher. Short and massive in stature till his recent illness, with a keen penetrating glance and an aquiline nose, his features revealed something of the impetuous temper of the man, and his occasional biting sarcasm. His devotion to Orchids amounted to a consuming passion ; not a scrap, nor a note, nor a drawing, however rough, came amiss to him if it related to an Orchid. To him meals and clothes were necessary evils, but his herbarium was a prime necessity of existence. The amount of his work was prodigious. Of its quality the botanists of the future will judge better than we. One thing, however, is obvious, and especially to those who have had the opportunity of comparing his work with Lindley's. In Lindley's time Orchids were, it may be said, counted by the score, while in our time the estimate has to be made by the hundred if not by the thousand. Lindley, with his clear perception, logical mind, and relatively small material, was able to trace sharply defined, expressive characters in few words, arranged with rare skill. Reichenbach, with a totally different frame of mind, was overburdened with the ever-increasing mass of material. His descriptions and comparisons were often singularly felicitous, his knowledge of detail enormous, but lacking co-ordination and precision. He never gave us in a compendious form a complete synopsis of the genera and species. It is greatly to be hoped that his immense collections and notes will fall into competent hands (at Kew if possible), for collation and revision—a task that will, however, require years of concentration, for his publications are not only extremely numerous, but scattered through a wide range of publications in almost all European languages."

A fortnight later the Editor had to announce the following fateful extract from the late Professor's Will, of which he had been favoured with a translation :—

" My herbarium and my botanical library, my instruments, collection of seeds, &c., accrue to the Imperial Hof Museum in Vienna, under the condition that the preserved Orchids and drawings of Orchids shall not be exhibited before twenty-five years from the date of my death have elapsed. Until this time my collection shall be preserved in sealed cases. In the event of the Vienna Institute declining to observe these conditions, the

collection falls under the same conditions to the Botanical Garden at Upsala. Should the last-mentioned Institute decline the legacy, then to the Grayean Herbarium in Harvard University, Cambridge, Mass. If declined by that Institute, then to the Jardin des Plantes, at Paris, but always under the same conditions, viz., of being sealed up for twenty-five years, in order that the inevitable destruction of the costly collection, resulting from the present craze for Orchids, may be avoided."

In commenting on the same it was remarked: "The subjoined extract from the will of the late Professor Reichenbach . . . will be received with profound regret. The late Professor had at all times the fullest and freest access to Dr. Lindley's Herbarium in the lifetime of that botanist, and subsequently for the last twenty or more years at Kew. The resources of that establishment were always at his disposal, while from hundreds of Orchid growers in this country he received freely and continuously material for his researches. The notes and memoranda on living plants received, directly or indirectly, from this office alone must have been very considerable, even if they did not form the bulk of the material at his disposal. It would be affectation to pretend that we do not receive the announcement we have now to make with chagrin and sorrow. The future task of Orchidists in this country is, by this step, rendered peculiarly laborious and perplexing."

The article concluded: "Though we may deeply regret that Professor Reichenbach has clouded his memory with an act which shows equal distrust of the generosity of his fellow botanists and of the strength of his own scientific reputation, we may rest assured that the scientific study of Orchids in this country will not be arrested, but that the rich material which this country, more than any other, affords will not be neglected, notwithstanding Professor Reichenbach's ungenerous attempt to paralyse its study."

The *Journal of Botany* also contained a long biographical notice, and remarked: "His knowledge was as unique as is the means by which he has succeeded in rendering his material temporarily, if not permanently, useless to those who should continue his work. . . . . He was universally consulted on all matters relating to his favourite Order; and it is to his correspondence that his herbarium owes its value, containing, as it does, almost every specimen that he had ever had sent him, with sketches showing the structure, and copious notes; the whole being arranged with scrupulous care and neatness. . . To us in this country he has for more than twenty years been a familiar figure—coming over for a stay often of many weeks, and settling down at Kew, where at one time he thought of permanently residing, so as to be in close proximity to the herbarium, which contains Lindley's type-collection of Orchids. . . The news of

his death . . . came upon us as a surprise; the provisions of his Will have not only astonished the scientific world, but have attracted the attention of those to whom the disposition of a herbarium has never presented any feature of interest. Mr. Hewett Watson, it will be remembered, labouring under some temporary annoyance, threatened to make a funeral pyre of his collections; Reichenbach's disposition of his collections is, at any rate for the present, scarcely, if at all, less mischievous than this. . . The bequest, thus limited, has been accepted at Vienna, and thus, for twenty-five years at least—even if the plants at the end of that period are in a consultable condition—botanists are deprived of the use of this invaluable collection. The result of this provision must be to impair its value, whilst its usefulness will be reduced to the narrowest limits."

In an Obituary notice in the *Proceedings of the Linnean Society* (drawn up before the disposition of his herbarium was known) it was remarked: "He was jealous to excess of any supposed encroachment on his special preserve; his resentment of the same was characteristic, and even amusing to those who were merely onlookers and were not exposed to the brunt of his attacks. During the last thirty years, that is since Lindley ceased to labour on these plants, Reichenbach has been the sponsor of an innumerable host of new species, varieties, and hybrids; every scrap or drawing or memorandum was carefully hoarded for his herbarium. This, therefore, has become the key to his life-long labours, and the destination of it will be eagerly awaited; a careful working of it by competent hands will be needed to clear up the many puzzles in his descriptions, which of late years had assumed an esoteric character, presuming an almost equal knowledge of plants to that possessed by the author. The state of his herbarium is also quite unknown, for during long years past no botanist has been permitted to have even a glimpse of the collection. . . . At his last visit to this country Reichenbach was looking forward to his retirement from the professional chair, with prolonged visits to Kew, and the preparation of a projected 'Index Reichenbachianus,' which was to give a much-needed guide to the widely-scattered descriptions of species and varieties; but this last, if even begun, is unfinished."

The following extract from the *Orchid Album* is interesting, because it affords evidence on a point respecting which doubt has been expressed: "We are extremely sorry to find by the published extract from his Will that his herbarium is not only lost to England, but that it really becomes a dead letter to the Orchid world by being shut up for twenty-five years. The Professor told us, when visiting us some time ago, that it was his intention to leave his herbarium to this country, and we sincerely regret that any English Orchid-growers should have so bitterly aggrieved him as

to cause him to have altered his mind and to shut up his numberless specimens, drawings, and copious notes from everyone interested in this beautiful and popular order of plants.—B.S.W."

The doubt alluded to appeared in the *Journal of Botany*, where the Editor remarks: "It is difficult to understand on what grounds it should have been assumed, as seems to have been the case, that the collection would come to England." The criticism was more particularly directed to a remark in the *Saturday Review*: "It has been understood by all the universe that . . . his gigantic and priceless collections would be left to Kew," and of this it is observed, "a more misleading statement it would be difficult to find." The following, however, has been written in the Kew copy: "Reichenbach told me more than once that his collections would go to Kew; but lately he was strongly prejudiced against those who had taken up the study of Orchids in this country.—W. B. H."

The foregoing sufficiently indicates the importance of the Reichenbachian Herbarium and the problematical nature of its contents, but if further evidence is necessary the reader is referred to the history of Masdevallia Lowii and Catasetum Bungerothii given at pp. 335, 336 of our third volume, where the question was asked "whether, in order to secure priority for a name, it is sufficient for an author to write a description which does not apply, refuse to let anyone see the specimen during his lifetime, and finally lock it up for a quarter of a century after his death?"

A comment by Reichenbach himself is eloquent in this connection. When describing Microstylis calophylla he had some difficulty with an incomplete diagnosis, and remarked: "Authors should do more than secure to themselves the right of priority . . . . by such incomplete diagnoses. Not only should a careful description be taken, but great care should be taken to help posterity in discriminating the species. Therefore the specimen, or those specimens, which furnished the evidence for the establishment of the species should be distinctly marked as 'the type of my species.' I now always do this in my collection. I regard this as a *fidei commisum* for my lifetime that that will have to be distinctly kept within reach of the men of science after my death." Comment would be superfluous.

Evidence of another kind could also be given, but we will conclude with a paragraph that can only be cited in its entirety from our own pages. When Reichenbach described Selenipedium Boissierianum he remarked: "'We know of only one specimen . . . . and it gives us much pleasure to dedicate this beautiful plant, probably unique in the collections of Europe, to its proprietor, M. Edmund Boissier, to whom we are under so great obligations.' Commenting on this M. William Barbey, the present possessor of the Boissier Herbarium, remarks: 'Unfortunately that unique

specimen was never returned by Reichenbach to its proprietor. It lies buried with the rest of the Orchids for twenty-five years, along with other uniques which had been entrusted to him.' . . . . Perhaps facts may yet come to light which will suggest a reason for Reichenbach's preposterous act, which no one, not even its eccentric author, has yet satisfactorily explained."

Some interesting problems evidently await the opening of the Reichenbachian Herbarium.

For the loan of the block used to illustrate this article we are indebted to the courtesy of the Editor of the *Gardeners' Chronicle*.

LÆLIOCATTLEYA CLARKII.

A FLOWER of an interesting hybrid has been sent from the collection of E. F. Clark, Esq., Evershot, Dorset, of which the parentage is given as Cattleya picturata × Lælia purpurata, the former the plant noted at page 204 of our sixth volume as a natural hybrid between C. intermedia and C. Leopoldii, the latter a fine dark form with some purple veining in the petals. The cross was made in 1898, and the seedling, which is said to have been "more than once divided," has now bloomed. The flower sent may be described as most like L.-c. Schilleriana in the shape and colour of the sepals and petals—which are white with a trace of purple veining—but nearer L.-c. elegans in the strongly three-lobed dark purple lip. From its composition it should naturally be intermediate between the two, and it may be added that the intercrossing of L.-c. Schilleriana and L.-c. elegans would yield a hybrid of identical composition.

The appearance of this hybrid raises a very interesting question. Cattleya intermedia, C. Leopoldii, and Lælia purpurata grow together in South Brazil, and yield the three natural hybrids mentioned above, all of which have also been raised artificially. The two Læliocattleyas are known to be very variable, and the question is how far this may be due to secondary crossing in a wild state. Two secondary hybrids have been recorded, namely, L.-c. Phillip Stokes (L.-c. elegans × C. Leopoldii) and L.-c. Queen Alexandra (L.-c. Schilleriana × L. purpurata), concerning which "Argutus" remarks: "The wonder is, considering the length of time that Læliocattleya elegans, Schilleriana, and Lælia purpurata have been imported and cultivated, that the presence of this and the preceding hybrid has not previously been known or suspected, as it is quite unreasonable to suppose that as we have natural hybrids between Cattleya Leopoldii, Lælia purpurata, and Cattleya intermedia, those hybrids must in some cases, and as the two undermentioned now prove, have crossed between themselves and with the parent species. There can be no doubt as to the correctness of the parents ascribed, as fortunately flowers of the true L.-c. Schilleriana

were at hand for comparison" (*Garden*, 1902, ii. p. 182). The parentage is, of course, only an inference, but if these two secondary hybrids occur there may be others, in fact twelve secondary combinations are possible, four of which have already been made in gardens, and now we have this additional one from Mr. Clark, which we have not been able to identify with any of the forms now referred to L.-c. elegans and L.-c. Schilleriana. The matter has already been dealt with in our pages (*O.R.*, x. pp. 311, 312), and we may add that we are still without further information about the two secondary hybrids said to occur wild. R. A. R.

SIMPLIFICATION OF MENDELIAN FORMULÆ.

PROFESSOR W. E. CASTLE, in a recent issue of the *American Naturalist* (pp. 170-182) expresses the need for a simplification of the Mendelian terminology now that Mendel's original conception of segregating dominant and recessive characters existing in contrasted pairs has been replaced by the ingenious presence and absence hypothesis. Mendel's "*A*" was a round form of pea, his "*a*" a wrinkled; his "*B*" a yellow-seeded pea, his "*b*" a green-seeded. But the significance of these terms has now changed. *A* still means a round pea, but *a* is simply a *not-round* pea; it may or may not be wrinkled. Likewise *B* is still a yellow-seeded pea, but *b* is nothing but a *not-yellow* pea; it may or may not be green. For all that *b* signifies now, the pea may be blue, violet, indigo, or carmine. The small letters now mean nothing, yet we read of repulsions or associations between *a* and *B*, or between *a* and *b*. Think of it! How can something be coupled with nothing? or nothing be inseparably bound up with nothing? "It seems to me the consequent effect on inheritance is absolutely nothing! We need to abandon the dual terminology, using only one set of symbols, and in a single significance. The duplicate set of symbols is the chief cause of the present confusion. The physiological condition which produces one colour is as real as that which produces another, and no mere negation; it is simply different. There are many instances on record in which one and the same character may behave at one time as a dominant, at another time as a recessive. Different gradations of colour may result merely from quantitative variations in cell constituents and consequent activities, nothing being lost. With a single system every symbol is significant, and its dominant or recessive character is indicated by the symbol whether large or small. The original or wild type need not be described in terms of its mutations; it is simply written *normal*. New forms arise through recombination of simple mutations, and each mutation as it arises should be given some suitable descriptive name, the initial or other significant letter of which shall be its symbol. The system would be capable of indefinite expansion without constant remodelling. Mendelians can easily

simplify their formulæ and make themselves more readily intelligible to themselves and to others. This simplified terminology commits one to no physiological theory; it simply states facts. We need not assume that the wild form contains a number of factors which by mutation have been lost, unless we choose to do so, but are free to suppose that merely a readjustment has taken place. The author concludes: "That terminology evidently is most desirable which states demonstrated facts most clearly and simply, and makes fewest assumptions as to their explanation. Otherwise the investigator may be led to conclusions based on his terminology rather than his facts, and this can lead only to disaster."

ORCHIDS AT KEW.

A fine plant of the brilliant Renanthera coccinea, "the Chinese Air-plant," is now flowering at Kew, producing a panicle with six branches and over 100 scarlet flowers, and making a fine show. A specimen of Calanthe Dominyi, the first artificial hybrid Orchid, is bearing fifteen spikes of lilac flowers, and a group of Dendrobium Dearei arranged with plants of the allied D. Sanderæ and D. Schuetzei also make a good display. Stanhopea tigrina, S. indora, and the distinct S. ecornuta have also flowered well, and a Gongora recently brought from Ecuador by Mr. W. Fox has been identified with G. grossa, Rchb. f., only known from description. It has flowered very freely. A plant of the rare Oncidium Warneri is producing a raceme of nine flowers, with a four-lobed yellow lip, and the sepals and petals greenish striped with rose. A plant of Cœlia macrostachya is bearing six dense racemes of rose-coloured flowers, making a fine display. It is grown in a compost of three-parts fibrous loam and one part osmunda fibre. Good drainage is essential, and at the present season occasional waterings of weak liquid cow manure are beneficial. In the same house a number of Sobralia Veitchii are making a fine show, together with S. Amesiana and its two parents, S. xantholeuca and S. Wilsonii, also a plant of S. Lowii. S. Veitchii seems to be very variable, some forms being white with a yellow throat to the lip, others having a rosy tinge in the sepals and petals. A plant of the rare Platanthera iantha must also be mentioned. In the Warm house a small group of the Swan's neck Orchids are very interesting, and include Cycnoches maculatum, chlorochilon, and Loddigesii, the latter the original species of the genus, and showing well the long arching character of the column from which the genus takes its name. Here also is a good plant of the very distinct Listrostachys forcipata, with short racemes of pellucid white flowers, which remain long in perfection. It has the habit of Oncidium iridifolium, and is very attractive. These are only a few of the many interesting species now in flower at Kew, and the showy species of the season are also well represented. H.L.S.

CATTLEYA FABIA VAR. SUNSET.

AT the Royal Horticultural Society's Show of autumn-blooming Orchids, held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 5th last, two handsome varieties of Cattleya Fabia were exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), namely, Sunset and gloriosa, an Award of Merit being given in each case. The former is here figured—or rather half the plant, for there was a second equally fine inflorescence. It is a very fine, deep

Fig. 58. CATTLEYA FABIA VAR. SUNSET.

rose-coloured form, and is remarkable for the large amount of buff yellow on the lip. The variety gloriosa was also very richly coloured, and had a broad purple-crimson lip, with some yellow veining in the throat. It may be remembered that at this exhibition Sir George Holford staged fifty plants of Cattleya Fabia, bearing an aggregate of over 260 flowers. They were obtained from two different crosses, one lot being remarkable for the brilliant colours, the other being lighter and with more yellow in the throat.

Cattleya Fabia was originally raised by Messrs. James Veitch & Sons from C. labiata ♀ and C. Dowiana aurea ♂, and received an Award of Merit from the R.H.S. in November, 1894, when it flowered for the first time.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

SHOULD the favourable conditions experienced for some time continue, the temperatures advised in previous Calendars may be maintained, but should the outside conditions change, and wet and cold weather prevail, the temperatures may be allowed to fall a degree or two in all departments.

SHADING.—During the present month the plants should be inured to as much light and sun as possible. The blinds should only be used whenever the sun is powerful, and likely to scorch the plants. By these means the plants will become ripened, and produce more and better flowers than if grown under shady conditions.

ATMOSPHERIC MOISTURE must be gradually reduced as the days shorten and the sun has less power, but in those houses where plants are growing a genial atmosphere may be maintained for the present month.

VENTILATION at this season is of the greatest importance, as air combined with light is essential in the important process of ripening the newly-made growths. A soft, ill-ripened plant cannot withstand the changeable conditions of the winter months as well as one thoroughly matured.

WATERING.—The application of water to the roots will now require much consideration, as those plants that have completed their growths will only require sufficient to keep them plump and healthy, whilst those that are in full growth must have water applied to them whenever they become dry.

WINTER QUARTERS.—With the advent of September we must prepare for the winter months, and the plants should be placed in their winter quarters, where a large number of plants have to be dealt with and room is limited; this requires some forethought, so that the plants should not be handled more than is necessary. The glass should be thoroughly cleansed from all kinds of dirt and insect pests. Those plants which are partial to certain positions should always be placed in them.

CYPRIPEDIUMS that are showing for flower should have their scapes neatly tied to stakes as soon as they become long enough, as, if they become twisted, they lose much of their beauty and utility. Any plants of the summer-flowering section that are in need of new rooting material may have attention as they pass out of bloom, using a compost as previously advised.

DENDROBIUMS.—The season has been most favourable for the cultivation

of these plants. In the deciduous section those species and hybrids which produce their flowers early in the new year are now rapidly finishing their season's growth. When this is completed, which may be determined by the end leaf of each pseudobulb being fully developed, they must be placed in a drier atmosphere, and receive water at the roots in much less quantities, and only sufficient given them to keep them from shrivelling. An excess of moisture at the roots of these plants is as detrimental as a parched over-dry one. Any plants that are still actively growing should have liberal treatment, and be induced to reach the resting stage, so that they may also be treated as advised. Plants of D. Phalænopsis that are pushing up their flower spikes may have water afforded them whenever they become dry, but when their spikes are removed much less will suffice. In those districts where fogs prevail in the autumn it will be advisable to push the plants into bloom as early as possible, thus avoiding the pernicious effects upon their beautiful flowers. D. formosum is also pushing up its flower spikes, and requires similar treatment to D. Phalænopsis. Both require all the light possible at this season. The evergreen section, such as D. thyrsiflorum, densiflorum, Farmeri, &c., as they complete their season's growth, should receive similar treatment to that afforded the deciduous species.

CATTLEYAS, LÆLIAS, AND THEIR HYBRIDS.—During the present month such plants as C. Warscewiczii, Warneri, Hardyana, and others that have passed the flowering stage, will commence to push roots from the base of their pseudobulbs, and any that are in need of new rooting material may have attention. Lælia tenebrosa, L. purpurata, Læliocattleya elegans, and their numerous varieties and hybrids will now commence to grow vigorously, and may receive similar treatment, if necessary. Any Cattleyas that are producing new roots may be repotted at this season, but care should be taken that only sufficient water is applied to the new compost to prevent the plant from shrivelling. The new roots will soon enter the new compost and re-establish themselves, if kept on the dry side. Those Cattleyas which flower in the autumn, such as C. labiata, C. Bowringiana, and many hybrids will have finished their season's growths and be pushing up flower spikes, and these should only have sufficient water to keep them plump and healthy, as, if they get water in excess, it will start them into growth again, and their flowers will be puny or may turn black and fall off. An excess of water at this season may mean the loss of a valuable plant, but, still, the other extreme must be avoided.

CHYSIS.—C. aurea, bractescens, Limminghei, lævis, and the hybrids C. Chelsonii and Sedenii should be suspended at the warm end of the Cattleya house, or any similar position, so as to enable them to finish their growths quickly, and until these are completed, and the leaves commence to change colour, the plants will require water at the roots whenever they appear dry.

When well matured they should be placed with the Dendrobiums in the resting-house, and treated as advised for that genus.

MASDEVALLIAS.—The robust-growing species should have attention during the early weeks of the present month, should they require new rooting material. Although these plants are not grown to the extent they formerly were, there is no more beautiful object in our Cool houses than a well-grown specimen of any one of them. Their treatment has been fully dealt with in former numbers.

ODONTOGLOSSUMS.—The repotting of these plants should be pushed on with, as it should be the aim of every cultivator as far as possible to get them all done as early as possible, so that they may become re-established before the winter sets in. All should be made clean and comfortable before that season arrives.

ONCIDIUMS are usually represented by plants in flower, no matter what the time of year, especially if well grown, and how often a well-grown specimen, even of a most ordinary species, appeals to us! One very pretty and useful species now in flower is O. obryzatum, its long and much-branched spikes carrying large quantities of pretty golden yellow flowers, spotted with light brown, and this at a season when Orchid flowers are not over-plentiful in most collections. The plants belonging to the O. crispum section, namely, O. Forbesii, curtum, Gardneri, Marshallianum, and O. crispum itself, although not flattering to present-day Orchid growers, are most useful subjects, even if we cannot keep them in a robust condition over a series of years. O. Marshallianum produces its flowers during late spring and early summer, whilst the others display their beautiful sprays during late summer and autumn. O. varicosum is one of the most beautiful and free-flowering Orchids known, and those plants that are at the present time producing flower spikes should be placed well up to the light, the spikes, as they become long enough, being neatly staked up to prevent accidents. O. ornithorrhynchum and its beautiful variety album, with others that have been growing during the summer months in the Cool house, will be better taken and placed in a cool position in the Intermediate house for the winter months. Oncidiums, after flowering, should be rested, as they require a decided rest, but on no account should they be allowed to shrivel.

MILTONIAS.—Continue to repot the plants of this genus as advised last month, but any that do not reach the desired condition during the present month will be better held over and potted with the late-flowering kinds in the early spring. The same remarks apply to any of the hybrids which have produced their flowers late, and have not yet commenced to grow.

ANGRÆCUMS.—These and similar plants, such as Aërides, Vandas, Saccolabiums, and other epiphytic inmates of the Warm house, may now

have the water supply at the roots slightly reduced, also much less moisture in the atmosphere will suffice. Too much water at this season may be the means of the plants receiving a check, whereby many valuable leaves may be lost, which will greatly disfigure an otherwise beautiful specimen. These plants should be gradually inured to more light and air on all favourable occasions. In order to carry our plants safely through the winter months it is necessary that they should be prepared by consolidating their growths as much as possible, and although the present season has been most favourable for fine, clean, healthy growths, we should not forget that we may have a severe winter before us.

VANDA CŒRULEA will now be in its beauty, and where a house can be devoted to its culture is a most delightful subject. As the plants pass out of bloom they should be rested, receiving air on all favourable opportunities and plenty of light at all seasons. The now-plentiful Renanthera Imschootiana succeeds under the same conditions as V. cœrulea, and this bright and useful summer-flowering Orchid is a most valuable subject for summer shows, and where cut flowers are required in quantity is much appreciated.

TRICHOPILIAS.—The different species which flower in the summer months, as T. Backhouseana, suavis, coccinea and others may have new rooting material, should they be in need of it. They succeed best grown in shallow pans, suspended from the roof of the Intermediate house, and a similar compost to that used for Cattleyas will answer their requirements.

GENERAL REMARKS.—Once more we have reached that season of the year when our thonghts and attention must be given to the safe keeping of the plants through the winter months. No detail should be considered too trivial to claim our attention, as all these small matters make for success. Everything that forethought can suggest, such as the heating apparatus, on which so much depends, should be placed in an efficient state of repair, as it is at the most critical periods that breakdowns occur. The roofs of the houses should also be made watertight, as a valuable plant is of more consequence than a few panes of glass. In smoky districts the roof glass of the houses should be made scrupulously clean, to admit all the light possible, as light is an essential factor in the cultivation of all plants under artificial conditions.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 12th, when there was a rather small display of Orchids, and the awards consisted of four medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair),

and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, F. J. Hanbury, W. H. Hatcher, G. Hunter, A. Dye, J. Charlesworth, A. McBean, W. H. White, S. W. Flory, W. Bolton, de B. Crawshay, R. A. Rolfe, and Sir Harry J. Veitch.

E. H. Davidson, Esq., Orchid Dene, Twyford, staged a choice group, including well-flowered examples of Cattleya Dowiana aurea, Warscewiczii, Hardyana, Parthenia, and Rex, Brassocattleya Joan (B. Perrinii × C. Warscewiczii), a pretty white hybrid with rosy spots on the lip, the handsome Odontoglossum Woodroffeæ (Rossii rubescens × Queen Alexandra), O. Helen, richly blotched with violet on a white ground, and a deep purple form of O. eximium (Silver Flora Medal).

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged an interesting and varied group, including several good examples of Cattleya Source d'Or, C. Dowiana aurea, suavior, Atalanta, and Gaskelliana, C. Armstrongiæ × intricata, the distinct Stanhopea saccata, a well-flowered Promenæa xanthina, Maxillaria grandiflora, Angræcum Scottianum, Miltonia vexillaria and Bleuana, Odontoglossum aspidorhinum and Uroskinneri, the striking Chondrorhyncha Chestertoni, Cypripedium Baron Schröder, and others (Silver Banksian Medal).

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent a fine example of Odontoglossum Queen Alexandra, and a good Odontioda Leeana (C. Nœtzliana × O. spectabile), having vermilion-red flowers with a lilac-coloured apex to the lip.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent good examples of Cattleya Pittiana and Caduceus, with ten good Odontiodas, including Charlesworthii, Devosiana, Thwaitesii, Leeana, and Sanderæ, forming a very brilliant little group.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including fine examples of Odontoglossum armainvillierense xanthotes, Rolfeæ, epicasta, O. Clytie × crispum, and others, the handsome Miltonia Charlesworthii, M. vexillaria robusta, the small but richly-coloured M. v. superba, Cattleya Fauna (Chamberlainiana × Hardyana), a handsome novelty having yellow flowers with some purple on the lip, the rare Stanhopea convoluta, Cycnoches chlorochilon, Dendrobium Sanderæ, Cypripedium leyburnense, the large-flowered Cryptophoranthus Dayanus, and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a good group, including a fine form of Vanda cœrulea, good examples of Cattleya Dowiana aurea and Rothschildiana, Dendrobium Dearei and Sanderæ, several finely-grown Odontoglossum crispum, and about a dozen Odontiodas, including Bradshawiæ, Diana, Charlesworthii, Lambeauiana, Thwaitesii, and keighleyensis (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent a well-flowered plant of the handsome Dendrobium Hookerianum, having deep yellow flowers with two dark blotches on the broad deeply fringed lip; also a fine hybrid from Læliocattleya George Woodhams and Cattleya Rothschildiana, having rich purple flowers with a dark claret-coloured lip.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a well-flowered Cattleya Atalanta, and Læliocattleya Ophir E. V. Low's var., having nearly white sepals and petals and a rose-purple lip.

Messrs. Stuart Low & Co., Bush Hill Park, staged an interesting little group, including Lælia crispa with eleven flowers, good examples of Miltonia Phalænopsis, M. Roezlii, and M. R. alba, the handsome Oncidium Lanceanum and O. Papilio, Cattleya Mendelii, and a fine Cœlogyne pandurata.

Messrs. Sander & Sons, St. Albans, sent Læliocattleya Phœnix var. King George (L.-c. Greenwoodii × C. Dowiana aurea), a handsome hybrid, having cream-white sepals and petals tinged and veined with purple, and a dark maroon-purple lip with some yellow lines in the throat.

AWARDS OF MERIT.

LÆLIOCATTLEYA URANIA (L.-c. Ingramii × C. Mantinii).—A very fine rich purple flower, of excellent shape, with a very broad, darker lip. Exhibited by Messrs. J. & A. McBean.

LÆLIOCATTLEYA WELLESLEYI VAR. FLAMBEAU (C. Warscewiczii × L.-c. Martinetii).—A large and very richly-coloured form, having bright rose-purple sepals and petals, and a broad purple-crimson lip, with some yellow in the throat and a much crisped margin. Exhibited by E. H. Davidson, Esq.

CULTURAL COMMENDATION.

CRYPTOPHORANTHUS LEHMANNII.—To Messrs. Charlesworth & Co., for a very fine plant, bearing about 150 flowers, which are considerably smaller than in C. Dayana.

At the meeting held on August 26th there was a good display of Orchids, including several choice groups, and the awards consisted of six medals, two First-class Certificates, three Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, A. Dye, W. H. White, Sir Harry J. Veitch, R. A. Rolfe, F. J. Hanbury, A. McBean, T. Armstrong, W. Cobb, J. E. Shill, W. Bolton, R. Brooman White, and Stuart Low.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Banksian Medal for an interesting little group, including Odontoglossum Thompsonianum, O. Dioscorides (spectabile × Ruckerianum

Pittianum), Cattleya Source d'Or, Miltonia Bleuana, and vexillaria superba, Brassocattleya Thwaitesii, Oncidium Wentworthianum, Lælia monophylla, Cypripedium Baron Schröder, Læliocattleya Perdita (C. granulosa Schofieldiana × L.-c. Tydea), a pretty Læliocattleya from C. intricata and L.-c. Ingramii, and several other interesting things.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a fine plant of Brassia brachiata bearing racemes of eight and nine flowers, and another of Pleurothallis velaticaulis, with many racemes of light green flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Cattleya Hardyana Goodsoniæ, a form with light yellow sepals and petals and a richly-coloured lip.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), sent a plant of Sophrocattleya Chamberlainiana with three flowers.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Odontoglossum Euterpe Ashtead Park var.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including well-flowered examples of the handsome Læliocattleya George Woodhams, a fine L.-c. Schroderæ, L.-c. bletchleyensis, a handsome L.-c. Greenwoodii × C. Warscewiczii, C. Rothschildiana × L.-c. George Woodhams, Cattleya Hardyana, Warscewiczii, and Mrs. Pitt, Odontioda Seymouriæ (Charlesworthii × Bradshawiæ), a handsome crimson form with much yellow on the lip, with examples of both parents, and other good things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including two good Anguloa Cliftonii, Bollea Lalindei, the handsome Vanda Sanderiana, Rhynchostylis retusa, a well-flowered Lycaste hybrida (Deppei × Skinneri), Catastetum tabulare, Lælia monophylla, Oncidium Sanderæ, Dendrobium ciliatum, Ancistrochilus Thomsonianus, Odontonia Farnesiana (O. Edwardii × M. Warscewiczii), with a panicle of purple flowers, Odontioda Devosiana, Brassocattleya Pluto, Stanhopea peruviana, Cattleya Muelleri and Davisii, a few good Læliocattleyas, Odontoglossums, Cypripediums, and others (Silver Flora Medal).

Messrs. James Veitch & Sons, Chelsea, staged a very fine group, including two good examples of Læliocattleya Nysa, Gertrude, callistoglossa, and bletchleyensis, Lælia Jongheana × C. Parthenia, most like the former but without keels on the lip's disc, Brassocattleya Ilione and Thetis, Cattleya Dowiana aurea, Harrisoniana and Hardyana, Odontoglossum Harryanum, grande and crispum, Cypripediums, and other good things (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including a pretty hybrid from Cochlioda Nœtzliana and Odontoglossum

hastilabium, and having elongated crimson red sepals and petals, and a four-lobed yellow lip, *Zygopetalum* Sanderæ, several fine Vanda cœrulea, Odontoglossum Phœbe, Brassocattleya Maroniæ and Moneta, Dendrobium Phalænopsis, Miltonia Roezlii and var. alba, Paphinia cristata, some brilliant Læliocattleyas St.-Gothard, Eurydice, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a good group of Cattleyas and others, in which we noted examples of Cattleya Gaskelliana and var. alba, several C. Dowiana aurea, Leopoldii, Thurgoodiana and Hardyana, C. McMastersiæ, a fine plant of Cypripedium A. de Lairesse, Læliocattleya rubens and bletchleyensis, and others (Silver Banksian Medal).

FIRST-CLASS CERTIFICATES.

BRASSOCATLÆLIA THE BARONESS (B.-c. Leemanniæ × L.-c. Ophir.—A very beautiful hybrid, having well-expanded, light yellow flowers of great substance, with some crimson markings on the lip. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

ODONTONIA BRUGENSIS VAR. EILEEN (M. vexillaria × O. Edwardii).—A beautiful hybrid, bearing an inflorescence of six well-expanded purple flowers, with a yellow crest to the lip. Exhibited by J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis).

AWARDS OF MERIT.

CATTLEYA HARDYANA VAR. MRS. WATERS BUTLER (Dowiana aurea × Warscewiczii).—A large and handsome form, having the sepals and petals well mottled, and a very large amount of clear yellow on the sides of the lip. Exhibited by Waters Butler, Esq. (gr. Mr. Jones).

LÆLIOCATTLEYA ETTRICK (L.-c. bletchleyensis × C. Dowiana aurea).—A large and handsome hybrid, having lilac-purple sepals and petals, and an intense purple lip. Exhibited by Messrs. James Veitch & Sons.

LÆLIOCATTLEYA MARQUIS DE WAVRIN ORCHIDHURST VAR..—A large and handsome form, bearing two purple flowers with a darker lip Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

ORNITHIDIUM SOPHRONITIS.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart., for a very fine plant, about a foot across, and covered with its brilliant orange-scarlet flowers.

MANCHESTER & NORTH OF ENGLAND ORCHID.

AT the meeting held at the Coal Exchange, Manchester, on June 5th, 1913, the members of Committee present were:—Messrs. Z. A. Ward (in the Chair), H. Thorp, J. Evans, D. McLeod, Dr. Hartley, J. Bamber, C. Parker, G. Weatherby, A. J. Keeling, W. Shackleton, A. G. Ellwood, J. Lupton, J. Cypher, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Large

Silver-gilt Medal for a fine group, including Odontoglossum Jasper, Fascinator, and Leeana, ardentissimum and crispum xanthotes, Odontioda Charlesworthii, some fine Miltonias, Cattleya Mossiæ delicata, and Robert de Wavrin, Læliocattleya Aphrodite, Fascinator, and G. S. Ball, Cypripedium bellatulum, Queen of Spain and R. Ashworth, Godefroyæ Kaiser Wilhelm, niveum Ashland's var., callosum Sanderæ, grande atratum, and others.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a nice group, to which a Large Silver Medal was awarded. Amongst the Odontoglossums were crispum Graireianum, Lucie-Mariæ, Capartianum, A. J. Balfour, moortebeekiense, and Virgin Queen, Miltonia vexillaria Vine House var., Cattleya Schrœderæ Vine House var., Lælia purpurata, and a fine plant of Cypripedium Rothschildianum, carrying five fully-expanded flowers on one stem, a Cultural Certificate with Bronze Medal being awarded to the gardener.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged Phalænopsis amabilis Rimestadiana, Odontoglossum crispum, white and blotched, and fine examples of Cypripedium niveum.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent an Odontoglossum seedling with seventy-four flowers, and O. armainvillierense xanthotes, a Cultural Certificate and Bronze Medal being awarded to the gardener.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), sent Cattleya Mossiæ Beardwood var., and a fine variety of Miltonia vexillaria.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very fine group, to which a Large Silver-gilt Medal was awarded. Amongst the host of good things must be specially mentioned, Cymbidium Lowianum concolor; Cattleyas in variety, including C. Mossiæ alba, Læliocattleya Martinetii Orchidhurst var., Brassocattleya Veitchii splendens, Lælia purpurata Orchidhurst var.; a nice collection of Odontiodas, containing several new hybrids; Miltonias of the vexillaria type, Masdevallia Harryana, and others.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a fine group, including Læliocattleya Aphrodite, Canhamiana, and Fascinator, Brassocattleya Veitchii and Triune, Cattleya Mossiæ, Skinneri Temple's var., Miltonia vexillaria, Bleuana nobilior, Odontoglossum eximium and Lambeauianum, Thunia Veitchiana and Oncidium pulchellum.

The Liverpool Orchid & Nursery Co., Gateacre, were awarded a Silver Medal for a group of unnamed Læliocattleyas, amongst which were several good varieties, well-grown plants of L.-c. Canhamiana and Dominiana, Miltonia vexillaria and a few Cypripediums, including bellatulum album and Godefroyæ Sunset, making a nice display.

Messrs. A. J. Keeling & Sons, Bradford, staged a nice mixed group, to

which a Silver Medal was awarded, the Miltonias of the vexillaria section being very fine, and a Cultural Certificate was voted for one specimen.

Messrs. Stuart Low & Co., Enfield, staged Cattleya Mossiæ Reineckeana, grandis, Pintadeau and Mrs. E. Ashworth, Læliocattleya Canhamiana Duchess and Eudora superba.

Messrs. Charlesworth & Co., Haywards Heath, staged Odontoglossum splendens, Marietta, and eximium.

FIRST-CLASS CERTIFICATE.

Cœlogyne pandurata Orchidhurst var., a very fine variety, with fourteen flowers on one spike, from Messrs. Armstrong & Brown.

AWARD OF MERIT.

Odontoglossum Vuylstykei Ashlands var., and O. Vertumis, both from R. Ashworth, Esq.

At the meeting held at the Coal Exchange, Manchester, on July 3rd last, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, Dr. Hartley, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, P. Smith, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a splendid group, to which a Silver-gilt Medal was awarded. It contained Odontoglossum excellens, Harryanum, Pluto, ardentissimum, Fletcheri, amabile, Pescatorei, Lindeni, Odontioda rosefieldensis, Bradshawiæ, Miltonia Hyeana, Bleuana rosea, vexillaria Fairy Queen, Queen Alexandra, and Lælia tenebrosa Walton Grange var., Læliocattleya Canhamiana, Cattleya Mossiæ Wageneri, Masdevallia Reichenbachiana; Trichopilia Hennisii; Cypripedium callosum Sanderæ, bellatulum album, and Godefroyæ var. Sunset.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was also awarded a Silver-gilt Medal for an excellent group, including Odontoglossum crispum Hoper and Diadem, eximium Warburtonianum, Thompsonianum, and others, Odontioda chelseiensis, Cattleya Mossiæ Arnoldiana Smee's var., Lælia tenebrosa Victor Warburton and Walton Grange var., Lælio-cattleya tyntesfieldensis, and Canhamiana Fire King, Miltonia vexillaria chelseiensis, &c.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged some very fine plants of Phalænopsis amabilis Rimestadiana, carrying up to thirty-five flowers on a spike, a Cultural Certificate and Bronze Medal being awarded to the gardener. He also sent P. intermedia Portei.

Mr. J. Birchenall, Alderley Edge, staged two varieties of Cattleya and Bollea Lalindei.

Messrs. A. J. Keeling & Sons, Bradford, staged a fine plant of Miltonia vexillaria Queen Alexandra, and a form of Cattleya Warscewiczii.

POLLINATION OF DISA UNIFLORA.

AN interesting article on the pollination of the brilliant scarlet Disa uniflora appeared in the *Cape Times* for April 5th last, which is here summarised. It appears that Mr. Harold Hamer has presented to the South African Museum Herbarium a specimen of a ripe seed capsule, found in Window Gorge, and he states that many of the other flowers showed signs of a swollen ovary, which probably means that they have been pollinated and will eventually produce ripe fruits. This discovery opens anew a controversy on the pollination of this Disa.

Roland Trimen, as early as 1863, opened the subject. He had examined a large number of Disa uniflora flowers, and in several cases found that one of the pollinia had been removed, but in no case saw a stigma with pollen grains adhering to it. He concluded that the remarkable brilliant colour of the flower is probably attractive to some day-flying hymenopterous or lepidopterous insect, and suggests that Disa uniflora offers nearly a parallel case to that described by Darwin, of the extremely imperfect fertilisation of Ophrys muscifera in England.

In 1888 the late Dr. Bolus monographed the Cape Peninsula Orchids, and states that he had never seen a matured seed-vessel, nor been able to detect any insect employed in its pollination, and he thought that the insect effecting pollination had become extinct, and that the plant was propagated solely by means of tubers. In 1895 Dr. Marloth read a paper before the South African Philosophical Society, and mentioned that fully-developed fruits had been found by Prof. MacOwan, Mr. Kassner, Mr. Schlechter, Mr. Chas. Ross, and himself, and concluded that the Disa was pollinated by insects like other Orchids. As a further proof of this Dr. Marloth was fortunate in capturing a butterfly, Meneris Tulbaghia (the Mountain Pride) in the vicinity of a cluster of Disas, which had a pollinium attached to one of its legs. About two years ago Mr. Phillips saw one of these butterflies with a pollinium adhering to it. These facts go to prove that Disa uniflora, though chiefly propagated vegetatively, is also sometimes fertilised and produces seeds.

This is the first season this Disa has been protected from being plucked at all, which will account for its profusion of bloom on Table Mountain this year, and will probably mean that a larger percentage of flowers, especially those growing on exposed cliffs, will become pollinated and produce seed, than when wholesale picking was allowed as in former years. Vegetative reproduction by means of tubers may be the chief method of propagation in this plant, as pointed out by Dr. Bolus and Dr. Marloth, but this only means that the Disa will be preserved in the few localised areas it is now found in. It is only when it produces seed, which are

sometimes carried away long distances from the parent plant, that colonisation of fresh areas can take place. These latter remarks will apply to all those Cape Peninsula plants on the protected list, and lovers of flowers may confidently expect to find a great increase in these plants in the next flowering season or two.

In forwarding this article to Mr. R. Dümmer, to whom we are indebted for a copy, Mr. E. D. Phillips remarks:—"Some few Sundays ago I went up Window Gorge myself and saw the Disa fruiting; considerably over 50 per cent. of the plants examined having fruits."

ODONTONIAS.

THE members of this exceedingly pretty race of bigeneric hybrids are well adapted for an amateur's Cool house, for they are free-flowering, and some of those of earlier raising are comparatively low in price. A position at the warmer end of the house is best, standing the plants on inverted pots, and in respect to ventilation, heating, and shading, those methods usually adopted in regard to the culture of Odontoglossums and Odontiodas will be found to answer admirably. In the matter of watering the following hints may be of use: In spring and autumn, a dose every third day; in summer, usually daily, and in winter once every four or five days. As in common with the majority of hybrids, these Odontonias take little or no rest, therefore any attempt at drying them off after flowering, would be attended with disastrous results.

After the flowering size is reached, repotting is needed every other year, the operation being best performed when the new growth is from two to three inches in length. A compost of green sphagnum moss, polypodium fibre, and a slight addition of oak leaves; these well mixed together and used in a damp state forms a very suitable combination. Great care should be taken in the repotting not to place the base of the bulbs below the rim of the pot. Cotton wool must be wrapped round the base of the flower spikes, or they are liable to be eaten by slugs, and a whole year's growing thereby wasted.

The following comprise a good selection of the best, those having M. Warscewiczii for one parent being the most vigorous growers:—

O. decora, M. Warscewiczii × O. Adrianæ.
O. Edna, M. Warscewiczii × O. Wilckeanum.
O. Lælia Sander, M. Warscewiczii × O. amabile.
O. Lairesseæ, M. Warscewiczii × O. crispum.
O. Lambeauiana, M. Warscewiczii × O. Lambeauianum.
O. Roger Sander, M. Warscewiczii × O. percultum.
O. St. Alban, M. Warscewiczii × O. Pescatorei.

C. ALWYN HARRISON.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

THIS month is one of the busiest for the Orchid grower, for preparations must now be made for the ensuing winter. With this object in view, the house must be thoroughly overhauled, the paths, staging, and roof glass washed, the pots scrubbed, dead leaves cut away, and the plants sponged, after which they should be placed in their winter quarters, with Cypripedium insigne, C. villosum, Odontoglossum crispum, and O. Pescatorei at the coolest end, and the hybrid and choicer things at the warmest. As an extra safeguard the staging should be well syringed with a strong solution of some insecticide, applying it more especially in the corners, and where the wooden lathes overlap and intercross, these being favourite haunts of woodlice and slugs.

Although fire-heat will probably not yet be required, yet it will be found advisable to test the heating apparatus one evening to ensure its being in proper working order for use in the following month. The following average temperatures will be found conducive to the healthy growth of the plants during the autumn :—

Day, 55° to 65° Fahr; night, 53° to 60° Fahr.

Obviously with such a comparatively low degree of warmth, a considerable quantity of fresh air can still be admitted, and it is of the utmost importance that the atmosphere should always feel pure and buoyant, especially for Cool house Orchids. Until the nights become chilly a little air can be left on, which is of more value than many growers imagine, for it enables the plants to recoup after a hot and, perhaps, airless day. Damping and syringing must now be done in moderation; a slight spray over the leaves about nine a.m. and a good damping down about five p.m. will usually prove sufficient. As to watering, growing plants will probably need a good dose of water every third day, and those at rest once a week, but obviously these matters depend so much upon the weather that no hard and fast rules can be given.

The liquid shading that was applied to the roof glass in May must be washed off towards the close of this month, for the blinds will afford all the protection necessary, and should only be lowered when the sun is shining directly on the house, for if overshaded now weak and unsatisfactory flower spikes will be produced by the winter-flowering Odontoglossums, as light is an important factor in their development.

Odontoglossum grande is now pushing up its flower spikes, and should be kept as close to the roof glass as possible and exposed to the full sun. This is an ideal species for an amateur's house, producing strong spikes of immense yellow and brown blossoms, which will continue several weeks

in full beauty. A sharp look-out should be kept for slugs, as they are extremely partial to this Orchid, the flower spikes and young roots apparently forming a special attraction to them.

OBITUARY.

WILLIAM HOLMES.—It is with deep regret that we learn of the death, on July 9th last, of Mr. William Holmes, Orchid grower to J. McCartney, Esq., Hey House, Bolton, in his sixty-second year. The deceased has long been a prominent supporter of the Manchester Orchid Society, and was one of the best-known and most highly respected Orchid growers in the North of England; and the *Journal of Horticulture* remarks that the groups and specimen plants exhibited by him at the Whitweek Show in Manchester in the nineties, when he had charge of the Pickering Lodge collection, have, it is asserted by Orchid specialists, never been equalled since in Lancashire.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during September, on the 9th and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 25th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 o'clock p.m.

The following amendments have been made in the list of competitions for the current session, as published at page 199. The Objet d' Art offered by Messrs. Charlesworth & Co. is for New Plants; the Medal presented by Mr. J. Evans for Odontoglossums, and that by the Royal Botanic Society of Manchester for Cattleyas.

ORCHIDS FROM PENARTH.—Several interesting and beautiful Orchids are sent from the collection of J. J. Neale, Esq., Penarth, by Mr. Haddon, including Læliocattleya callistoglossa, Lustre, Greenwoodii, and elegans, Cattleya Tacitus and Dowiana aurea, the handsome Oncidium Lanceanum and Kramerianum, Cycnoches chlorochilon, Cirrhopetalum nutans, Physosiphon Loddigesii, and several other interesting botanical species.

R.H.S. SCIENTIFIC COMMITTEE.—The following reference to Orchids exhibited at meetings of the Committee are taken from the official report (continued from page 168):—

June 3rd, 1913:—

LÆLIOCATTLEYA FREAK.—Mr. G. Wilson showed a plant of Cattleya

citrina × Lælia purpurata from the garden of C. J. Lucas, Esq., Warnham Court, Horsham. The flowers are intermediate in size and colour between those of the parents, and they are produced on a horizontal spike. A Certificate of Appreciation was recommended to Mr. C. J. Lucas.

CATTLEYA MOSSIÆ BUD SPORT.—Mr. E. H. Davidson sent a plant of C. Mossiæ Golden Ray, having the petals marked with yellow like the labellum. It appears to be a case of irregular peloria, but differing from the usual form of peloria in having the labellum characters showing in the petals, whereas in the usual form the petal characters show in the labellum.

July 15th :—LIPARIS LACERATA.—Mr. J. O'Brien showed an inflorescence of Liparis lacerata (Ridley, *Journ. Linn. Soc.*, xxii. 1886, p. 284, Malay Peninsula, Perak, &c., Dist. Tenasserim, Borneo). A small example is represented in Burbidge's drawings of Borneo plants in the Natural History Museum. The species was little known until it flowered with the Hon. N. Charles Rothschild, and was noted in *Gardeners' Chronicle*, February 15th, 1913, p. 99, from a plant sent to him by a collector in Borneo. The present specimen, flowering with Sir Marcus Samuel, was obtained from the same source. Some of the flowers had dropped, but the spike was about nine inches in length.

ORCHID PORTRAITS.

CATTLEYA MOSSIÆ (a fine specimen).—*Horticulture*, 1913, p. 176, with fig.

CATTLEYA WARSCEWICZII.—*Journ. Hort.*, 1913, ii. p. 111, with fig.

CYPRIPEDIUM CALLOSUM SANDERÆ.—*Journ. Hort.*, 1913, ii. pp. 110, 111, with fig.

DENDROBIUM THYRSIFLORUM.—*Horticulture*, 1913, p. 137, with fig.

ODONTOGLOSSUM QUEEN ALEXANDRA VAR. THEODORA.—*Gard. Mag.*, 1913, p. 601, with fig.

STANHOPEA CONVOLUTA, Rolfe.—*Bot. Mag.*, t. 8507.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.B., Colombia.—The plants were completely dried up on arrival, being wrapped in dry moss in a cardboard case open at the ends. We suggest that living plants would travel best if gathered when at rest, freed from superfluous moisture, and then wrapped in oiled silk, with proper protection against crushing in the post.

E.F.C.—We do not know whether Cattleya porphyroglossa, Rchb. f., is in cultivation at the present time. We have not seen it for years.

F.D.—A form of Catasetum splendens, Cogn., which we have a note about.

J. O'B.—Thanks for note. We have corrected the record.

F.L.—The flower has not yet arrived.

THE ORCHID REVIEW.

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OUR NOTE BOOK.

THE enormous number of Hybrid Orchids that are constantly appearing imposes an increasing difficulty in keeping accurate records of them, and thus preventing as much as possible the unnecessary duplication of names. This has long been felt by the R.H.S. Orchid Committee, and, although their records only deal with Certificated Orchids, it has frequently been found necessary to alter names through the discovery that named hybrids of similar parentage were already in existence. In order to meet this difficulty the following motion was unanimously adopted by the Orchid Committee at its meeting on September 9th :—

"In view of the necessity of securing the earliest possible records of new hybrids, and to supplement the list of plants that have received Awards, the Orchid Committee recommend that a new record, to be called the Hybrid Orchid Register, be established, and that Orchid raisers and growers be asked to bring their new plants when in flower for the first time, even although they may not be sufficiently developed to enter for Awards, and to enter the name, parentage, and name of the exhibitor of the plant on a Registration form, to go before the Committee. After testing, to prove that the name is in order, it shall be entered on the Society's Hybrid Orchid Register, and, once recorded, the name must be recognised for all crosses of similar parentage when subsequently shown, unless valid reason can be given to prevent it."

This proposed registration of Orchid Hybrids is a step in the right direction, and if carried out with thoroughness, and in accordance with the Rules of Nomenclature which have been drawn up, and widely accepted, such a Register should be of much value in checking the piling up of useless synonymy. The difficulty of any list is that it becomes rapidly out of date, even while being printed, and the only way to prevent this seems to be to keep it constantly posted up, meeting by meeting, and to refer to it constantly whenever a supposed new hybrid comes up for consideration. The matter we believe has been referred to a Sub-Committee of the Council for consideration and report.

Another interesting generic hybrid has appeared, having been raised by Messrs. J. & A. McBean, Cooksbridge, from Ada aurantiaca and Odontoglossum Edwardii. It was exhibited at a meeting of the R.H.S. on September 9th, under the name of Adoglossum Juno, and was accorded a Certificate of Appreciation by the Scientific Committee. It is curious to see the way in which the very distinct characters of the parents have been combined, for those of the Odontoglossum parent decidedly preponderate, both in shape and colour, so much so that the influence of the other parent is quite obscured. Ada aurantiaca would probably combine better with an Odontoglossum of more nearly its own colour, and the larger the size the more likely would the hybrid be to be of horticultural importance. In all probability it is only the first of a series.

The combination between Ada aurantiaca and Cochlioda Nœtzliana is already known, having been flowered by M. Henri Graire, Amiens, in August, 1910, and exhibited under the name of Adioda St. Fuscien. This has a brilliant red colour, as might have been expected from its parentage, but the flower largely resembles the Ada parent in shape. It has also been raised by Messrs. Charlesworth & Co., Haywards Heath, and plants from both raisers were exhibited at a meeting of the R.H.S. in January last, when a Certificate of Appreciation was awarded. It will be interesting to see what other hybrids from this very distinct and brightly-coloured Orchid are like.

From an announcement on another page it will be seen that Sir Harry J. Veitch is retiring, and that the Orchid business over which he has so long presided with such conspicuous success is being separated from the general nursery and seed business, and will in future be carried on at Langley by Messrs. S. W. Flory and J. M. Black, both of whom have long experience to guide them. They have acquired the entire Orchid stock, including the numerous unflowered seedlings, all derived from selected parents. The seed business, and the principal part of the seed grounds at Langley, have been purchased by Messrs. Sutton and Sons, Reading. Our good wishes follow Sir Harry into his well-earned retirement, which we hope he and Lady Veitch may long be spared to enjoy. It will be remembered that the honour of knighthood was conferred on Sir Harry on the occasion of the Royal International Horticultural Exhibition held in the grounds of the Royal Hospital, Chelsea, last year. His portrait was given at page 41 of our last volume, together with a short account of his numerous activities, and of the history of the firm of which he has so long been the head. Our nineteenth volume was also dedicated to Sir Harry.

THE REICHENBACHIAN HERBARIUM.

Our article on the Reichenbachian Herbarium at pp. 273-278 has, we are glad to find, aroused considerable interest. An old friend, who knew the late Prof. Reichenbach for over twenty years before his death, writes: "It was forty-five years ago that I first visited him, and repeated the visit twice yearly for a long period. There were 130 steps to climb to his high abode, chosen, as he said jokingly, so that no spilt water might destroy his treasures. At last, light will be thrown upon his work. He made mistakes, but he had not the great Kew Herbarium to run to on the spur of the moment. He was great, and had a marvellous mind. His memory wants careful handling. He did endless good, and we have all reaped the benefit of his sowing."

We are also asked by another correspondent whether the Herbarium is likely to be of much use after being shut up all these years? Our reply must be in the affirmative. We believe that ample means were taken to preserve the specimens from the ravages of damp and insects, and if this has been done no fear need be felt as to their safety. The Herbaria of Lindley and of Wallich are in excellent condition, and even the much older Herbarium of Linnæus is well preserved. With proper care the lapse of years scarcely counts in this connection. As to the work having been carried on very well without the Herbarium, let us be under no illusions. It has been a long struggle under adverse circumstances, as those who realise the difficulties involved will be able to appreciate. It is not always easy to identify closely allied species from descriptions alone, even when carefully made from ample materials. What then shall be said for imperfect descriptions, often made from incomplete or unrepresentative scraps, without any attempt to give dimensions, and sometimes without any indication of the native country?

Let us give an example. In 1860 Reichenbach described (*Hamb. Gartenz.*, 1860, p. 424) a new Stanhopea from Consul Schiller's collection, as follows:—

"Stanhopea costaricensis. aff. St. Wardii, hypochilio pandurato, inferne profunde intruso, hinc quasi bigibbo, gibbere antico curvato, transverso, postice utrinque carinato, canali subclauso.

"Von Costa Rica in Herrn Consul Schiller's Sammlung."

There is not a word besides, but will anyone who knows Stanhopeas tell us to which species it belongs? It may be large or small, white or yellow, spotted or unspotted, in short the description is wholly inadequate. If the locality is correct, the plant may ultimately be identified with some Costa Rican species, but in the meantime it may have been described under some other name, in which case the law of priority will consign the new

name to oblivion. This law prohibits an author from redescribing a plant under a new name, although failing to secure for him the one condition that would prevent such a mistake. The probability is that many species have been so redescribed, while others have been wrongly identified, simply because the world cannot wait on posterity, merely to gratify the caprice of an individual who, though himself receiving ample assistance from his contemporaries, did not scruple to place all the obstacles possible in the path of his successors.

A week after Prof. Reichenbach's death was announced, the following appeared in the pages of the *Gardeners' Chronicle*: "It would be a pleasing thing to us just now if a subscription were raised to commemorate the labours of Professor Reichenbach, with a view to found some distinction connected with Orchids which would be worthy of his name, for I am sure the proposal would be well received and successful. Being a great lover of Orchids, it would give me great satisfaction to subscribe, particularly as it is just fifty years since I first made the acquaintance of Professor Lindley and became a contributor to the *Gardeners' Chronicle*." In supporting the movement the Editor spoke of the letter as expressing "a feeling which we believe to be general among Orchidists," but shortly afterwards the conditions of the late Professor's Will were announced, and, naturally enough, nothing further was heard of the proposal. It was doubtless felt that the Professor had successfully erected his own memorial.

Less than a year later the testamentary dispositions of another celebrated naturalist were announced, and the *Chronicle* then remarked: "What a contrast this Will presents to that of another naturalist, who thought the search after the truth (which is science) could be promoted by sealing up his collections for a quarter of a century. In referring to this matter we may mention that we have only just ascertained the date of this malicious will, which was April 11th, 1888. A few days after the testator received, at the Ghent Quinquennial Exhibition, from the hands of the King of the Belgians, a Gold Medal, given in honour of the Professor, and as a testimony of gratitude from the Royal Agricultural and Botanical Society of Ghent. Surely the recipient of the Medal must have felt that he had forfeited his claim to the gratitude of his fellows.

The following note, which appeared in the pages of the *American Florist*, affords a suitable conclusion to our article:—

"A REICHENBACH INJUSTICE.—A. B. was a very successful botanical collector, and discovered several new Orchids in the East Indies and Indian Archipelago. Some of these were imported alive into Europe, and are now in general cultivation, and the discoverer has received due credit for them. But he discovered several species, if not some genera, new to science, and of which he was able only to secure herbarium specimens. On

returning to Europe, he sent these, together with complete information and drawings to Reichenbach, but he has never heard anything further of them, and now they are locked up in the Reichenbachian Herbarium, to remain there, sealed from the world, for the next twenty-five years. In the meantime it is quite probable that C. D., E. F., and others may rediscover these new plants in their native wilds, and secure living or herbarium specimens of them, and submit them to the authorities at Kew for identification of name, and gain the credit of being the original discoverers. This is very galling, and ill requites the dangers, privations, and sickness A. B. underwent, his enthusiasm in the field, and his passionate love for Orchids. But it is a stinging lesson—it teaches us how unsafe it is to trust our eggs in any one man's private basket. Had Kew, or some other noble, liberal, public institution of the kind been entrusted with the identification and classification of Orchids, no such injustice as that done to A. B. could possibly have been done."

DENDROBIUM MICROGLAPHYS.

It is interesting to recover another of the lost Reichenbachian species. Dendrobium microglaphys was introduced from Borneo in 1865 by Mr. Stuart Low, and flowered in the winter of 1867, in the collection of Wentworth W. Buller, Esq., Strete Raleigh, near Exeter, being described by Reichenbach (*Gard. Chron.*, 1868, p. 1014). It was described as a species in the way of D. aduncum, Wall., with stems a span high, ligulate acuminate leaves, and racemes of whitish flowers with five purple stripes on the lip. It was probably soon lost sight of, and nothing further seems to have been recorded about it. A similar plant has now flowered among the Bornean importations of Sir Marcus Samuel Bart., The Mote, Maidstone, and has been sent to Kew for determination by Mr. James O'Brien. The flowers are borne on short racemes, and are over ¾-inch long, with subconivent white sepals and petals, and the lip purple at the base, broken up into five purple lines in the centre, and the apex light yellow. The mentum is saccate, obtuse, and ¼-inch long. It somewhat resembles D. callibotrys, Ridl., in habit. The flowers have a pleasant heliotrope-like fragrance.—R.A.R.

OBITUARY.

John Snow Moss.—It is with the deepest regret that we have to record the death, at his residence, Wintershill Hall, Bishops Waltham, on September 11th, of this well-known amateur Orchidist, at the age of 54 years. Mr. Moss had just returned from a visit to the Continent when he was seized with an apoplectic stroke, from which he never rallied. He had been an enthusiastic Orchidist for upwards of thirty years, and as long ago as June, 1890, a new

Cœlogyne flowered in his collection, which had been received from a friend in the Nilghiri Hills, S. India, and which was afterwards described under the name of C. Mossiæ, after his wife. Of late years he had taken up the hybridising of Odontoglossums with considerable success, and an account of his collection appeared at pp. 111-117 of our April issue. A group of his hybrid seedlings was figured as recently as August last (see page 249). One of his most highly prized Orchids was Odontoglossum crispum Mossiæ, which flowered among imported plants, and which he has used much for hybridising with. It is figured at page 113. His first hybrid was Odontoglossum Kenchii (Wilckeanum × Kegeljanii), named after his gardener, Mr. Kench, and perhaps the most remarkable was Odontioda Mossiæ (C. Nœtzliana × O. maculatum), which received an Award of Merit from the R.H.S. in March last, when a similar award was given to a brilliant form of Miltonioda Harwoodii raised by him. Mr. Moss has been for some time a member of the Orchid Committee of the R.H.S., and his death creates a vacancy on that body. He was one of the Jurors at the two last Quinquennial meetings at Ghent, and also a Judge at the Horticultural Exhibition held at Brussels last year. He was well known as an enthusiastic and successful cultivator, and his loss is deplored by fellow Orchidists and by a wide circle of friends, with whom he was universally popular. The funeral took place on September 15th at Upham—in which parish the residence of the deceased gentleman is situated, and of which parish he had for some years been rector's warden—in the presence of a large company of friends and neighbours. On the coffin rested a magnificent wreath of his favourite Orchids, placed there by his widow, and there were many other floral emblems. The flowers used for the grave were principally from the gardens of Mrs. Travers and the Hon. Albert Hood, the work being carried out with the assistance of Mr. Kench, who has been head gardener to Mr. Moss for the last seventeen years.

ADOLPHUS HENRY KENT, B.A.—After a long and painful illness, and at the mature age of 85 years, Mr. A. H. Kent passed away, on September 12th, at his residence, Mycene, Doria Road, Feltham. Mr. Kent was for many years private secretary to Mr. (now Sir Harry J.) Veitch, in which capacity he was largely responsible for the carrying out of that standard work, *Veitch's Manual of Orchidaceous Plants*, his unremitting care in its preparation being gratefully recognised in the preface. He was also the writer of that valuable work, *Veitch's Manual of Conferae*, originally published in 1881, and of which a second and greatly enlarged edition appeared in 1900. He was originally educated as a schoolmaster, but relinquished the business owing to increasing deafness, when he accepted a post with Messrs. James Veitch & Sons, eventually retiring on a pension. Mr. Kent had a good knowledge of Botany and the theoretical and practical

side of horticulture, as well as of foreign languages. He obtained his degree in the University of London in 1871. Some years ago he was elected an Associate of the Linnean Society in recognition of his excellent work. Deceased was a widower with no issue, and his extensive library of classical and scientific books are bequeathed to his nephew, Mr. Charles H. Kent.

WILLIAM BULL.—We regret to record the death of Mr. William Bull, eldest son of the founder of the Establishment for New and Rare Plants, Chelsea. On the death of Mr. William Bull, sen., in 1902, the business was continued by the sons, under the title of Messrs. William Bull & Sons, but failing health led to the retirement of the elder in 1909, and he then went to live at Brighton, where he died on September 8th.

BULBOPHYLLUM BISETUM.

AN interesting little Bulbophyllum was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on September 23rd, which proves to be B. bisetum, Lindl., a species described in 1842 (*Ann. Nat. Hist.*, x. p. 186), from dried specimens collected in the Khasia Hills by Griffith, the author remarking that it was a very singular little plant, with flowers as large as a small pea, and deeply keeled sepals. In 1851 it was described and figured by Griffith under the name of B. cirrhopetaloides (*Griff. Notul.*, iii. p. 290; *Ic. Pl. Asiat.*, iii. t. 296, fig. 1), from the same source. It was afterwards collected by Hooker & Thomson, and by Mr. C. B. Clarke, in the Khasia Hills, where it grows at 4000 to 5000 feet elevation. More recently it has been collected in Sikkim, at 5000 to 6000 feet elevation by Mr. R. Pantling, and is figured in the Orchids of the Sikkim Himalaya (*Ann. R. Bot. Gard. Calc.*, viii. p. 73, t. 99). The authors remark: "The flower is remarkable for the spurs which run parallel to the dorsal sepal and to the petals, and which are homologous with the spurs of the Burmese B. xylophyllum." They are really filiform appendages, longer than the spathulate petals, behind which they are situated, and they arise from the junction of the dorsal and lateral sepals. Their homology and function are obscure, but Griffith suggested that they might be appendages of two of the ribs of the ovary. Lindley called them filiform bracts, and from their presence he derived the specific name. The pseudobulbs are depressed ovoid, produced on a slender creeping rhizome, and bear a single lanceolate leaf, while the scapes are pendulous, filiform, with a short raceme of many dull purple and green flowers. A plant of this curious little species flowered in the Royal Botanic Garden, Glasnevin, in September, 1898. Sir Joseph Hooker cited B. carinifiorum, Rchb. f., as synonymous, but according to the original specimen in Lindley's Herbarium it has much broader leaves and is otherwise different.—R. A. ROLFE.

CATTLEYA DOWIANA AUREA.

THIS magnificent Cattleya, undoubtedly the finest in the genus, is, unfortunately, not the easiest to cultivate, but from observations of plants in different collections and from my own experience, I am convinced that its reputation for being shy flowering is due to a wrong system of culture. The ideal position for this Orchid is to suspend it at the warmest end of the Cattleya house, only a few inches from the roof glass, and in as sunny a position as possible, taking care to give it throughout the year as much

Fig. 59. CATTLEYA DOWIANA AUREA.

light as possible, shading only for a few hours in July and August when the sun is shining directly upon the plant. It should never be subjected to a lower temperature than 55° Fahr., and during the growing season a humid atmosphere is very necessary.

Another important point in the cultivation of this Orchid is to keep it in a fresh and sweet compost, and for this reason I consider that repotting every alternate year is of absolute necessity, this operation being best performed when the plant, after flowering and resting, is pushing forth new

roots. The following will provide a satisfactory rooting medium: Two parts of osmunda fibre, one part A1 fibre, and one of polypodium fibre. Care must be taken to pot the plant firmly, and not to overwater it, as it is rather more subject to rot than some of the other species. Lastly I am positively convinced that much benefit is afforded the plants if the house be damped every three or four days in the summer evenings with a weak solution of manure water, of course not touching the plants themselves, merely spraying the path and stages. C. Alwyn Harrison.

ORCHIDS AT BRUGES.

A visit to the extensive establishment of Messrs. Sander & Sons, Bruges, completed our Belgian trip, and proved particularly interesting and instructive. Great progress has been made during the past five years, especially in the seedling department, to which we first made our way, Mr. F. Sander, who acted as guide, remarking that we might as well begin at the beginning. On passing into the first house we found thousands of tiny seedling Cattleyas and allies, in various stages. The seeds are sown on polypodium fibre and canvas, and the seed beds were in many cases green with tiny globules, all from choice crosses. The work of pricking them off was in progress, and for this delicate work girls are employed, and become exceedingly expert, placing the tiny seedlings on three-inch pots of prepared compost—some eighty or ninety on each—with the utmost regularity. The tiny leaves soon begin to push, and when more room is required they are pricked off again. Successive batches were pointed out, some done the day before, some a week old, some a month old, and others six or seven weeks old, showing an interesting progression in size. The seedlings are now potted separately in ½-inch and ¾-inch pots, these being then bedded out in square pans of sphagnum moss to keep the compost from drying up. The temperature of the house is maintained from 20° to 22° Centigrade (68° to 72° Fahr.). It may be added that the usual trouble is experienced with the fly that attacks Orchid seedlings, which is continually being brought in with the polypodium fibre and sphagnum moss, so that there seems to be no method of stamping it out, though the usual means are taken to keep it in check. A toad was observed on the floor of one of the houses, and these are excellent vermin killers, in fact Mr. Sander has encouraged his men to bring them in by a small payment.

As the seedlings progress they are taken into other houses, and the next house contains hundreds of boxes of sphagnum filled with the tiny pots, each containing a flourishing little seedling. A large number of albino Cattleyas were pointed out, from the well-known C. Mossiæ Wageneri down to the recent C. Warscewiczii alba, and all under numbers, which are carefully entered in a record book. It was very interesting to go through

these albino seedlings, and a few were pointed out having colour in their leaves when under the influence of the sun. There were also seedlings from C. intermedia alba, and Mr. Sander remarked that these when crossed with other albinos never give coloured forms, the white being too intense. Of course the albinos, numerous as they are, only form a small proportion of the thousands of seedlings seen in all stages, and which must be passed over with a brief remark, so large is the establishment and so numerous the features of interest noted.

We now passed into a Cool house, containing seedling Odontoglossums, Miltonias, Odontiodas, &c., including a good many in spike or flower. A batch of Miltonia St. Andre × Roezlii was very interesting, and showed some reversions towards the latter, while one showed a pretty radiating blotch at the base of the lip. A seedling from M. Roezlii × vexillaria memoria G. D. Owen has a very pretty plum-coloured blotch at the base of the lip. This, of course, is a variety of M. Bleuana. A good dark M. Roezlii was in bloom. Here also was the attractive hybrid from Odontoglossum Edwardii × Miltonia vexillaria which was described at page 180 under the name of Odontonia brugensis. Cochlioda Nœtzliana × Miltonia Warscewiczii was in spike, and this has since been described as Miltonioda Cooperi (see p. 232). In other cases Miltonia Warscewiczii has been used as the seed bearer, and several promising seedlings between it and various Odontoglossums were in bloom, or spike, and these have been noted elsewhere. One curious cross was M. Warscewiczii × O. Edwardii. A deep rose-purple form of Odontioda Cupid (C. Nœtzliana × O. ramossisimum) was in bloom, and batches of other promising Odontiodas were pointed out. A lot of seedling Odontoglossums were producing their first flowers, and we have examples and notes of some of them, which we may be able to mention later. Some promise to develop into very handsome things when the plants become strong. There was the usual amount of variation between seedlings of the same batch.

In the next house were some older plants, as well as a lot of seedlings, and we noticed some good Odontioda Bradshawiæ in bloom, including one with light cherry-red markings on a white ground, two good O. Cooksoniæ, O. keighleyensis with a large panicle of flowers, and examples of O. Charlesworthii. About 150 Odontoglossums were in bloom, and we noted some good forms of O. eximium, O. armainvillierense with large round white flowers and a single blotch on each segment, a very fine rosy O. amabile, blotched with cinnamon, and the lip very broad, O. bellatulum, a very fine well-blotched form of O. excellens, O. armainvillierense × crispum, white with a light purple blotch on each segment, O. loochristiense, examples of O. spectabile × Edwardii, one of which was nearly black, a lot of Edwardii × triumphans, several of them in spike and bloom, and a very

promising O. crispum Graireanum crossed with another blotched crispum, and having broad white segments densely spotted with crimson-brown. These two houses contained thousands of seedlings in all stages and should yield many choice things when they reach the flowering stage.

A house of the old Pacho type of O. crispum formed the strongest contrast in point of vigour with the seedlings, and some of the plants have been here for twenty years, in fact Mr. Sander remarked that they are hard to grow, but they are prized for the good things that have come out of the importation.

A house of established Odontoglossums contained many good things in bloom, including two O. McNabianum (Harryanum × Wilckeanum), one of which had very dark flowers of enormous size, a good O. eximium with clusters of purple spots on a white ground, some well-blotched O. Pescatorei × Hallii, O. amabile with a spike of fifteen large flowers, fine forms of O. Wilckeanum, some good O. triumphans latisepalum × sceptrum, one having a spike of seventeen flowers, two very distinct forms of O. spectabile, one, from crispum as the seed-bearer, being very dark in colour, O. cirrhosum × Harryanum, with a large branched panicle, O. harvengtense delicatum, a fine form with a very light yellow blotch on the lip and nearly white petals, and many others, over a hundred being in flower. There were also good forms of Miltonioda Ajax, Odontioda Sanderæ, and O. grata. We also noted a number of capsules in the house.

Two other houses of Odontoglossums, mostly seedlings, followed, and here we noted O. Rolfeæ × Pescatorei, almost like a white O. Pescatorei, some good O. altum, with examples of O. cordatum, maculatum, and Cervantesii, Odontioda Charlesworthii and Bradshawiæ, and a nice batch of Sophronitis grandiflora. Here were also a number of capsules from interesting crosses.

We now visited two Phalænopsis houses and found an immense number of plants in the most robust health. In the first was a batch of P. Schilleriana, and Mr. Sander remarked that last February there were about 500 spikes of flowers, forming quite a picture. They are grown in baskets of osmunda fibre, suspended over a layer of leaves, and since flowering had been kept rather dry, but as new roots were beginning to push the supply of water would now be increased. The plants were remarkably sturdy and clean, and a single example was in bloom, also a very rosy form of P. Sanderiana, and a batch of three dozen P. Aphrodite, forming a beautiful group. A batch of P. Sanderiana was growing near by, and it was remarked how much alike they were. P. Sanderiana, however, has usually a broader, redder leaf, and the flowers are more or less tinged with rose. An albino of P. amabilis was pushing up a spike, the whole plant showing that peculiar pale green colour so prevalent in albinos. P.

violacea was pushing up spikes, and we noted P. Lueddemanniana and two plants of the rare P. leucorrhoda, not now in bloom. Here also we noted a good batch of Angræcum Sanderianum, a few being in bloom, and a number of Miltonia vexillaria placed here to hasten their flowering. Near the door were fine plants of the remarkable Arachnanthe Lowii and Stauropsis lissochiloides, the latter in spike. Moss litter is placed beneath the plants, which helps to maintain a moist atmosphere.

The second house was chiefly devoted to Phalænopsis amabilis Rimestadiana, the plants being in baskets, in the most robust health, and many of them in bloom. There was an earlier batch of flowers in January. These plants are largely grown for cut bloom, as the spikes last well when cut, and there is a good market for them in Paris. The paths are formed of cinders, which help to maintain a moist atmosphere. Here we noted a plant of Sarcochilus unguiculatus bearing two spikes, and one of Dendrobium Serra, a curious species of the Aporum section.

We now passed through a succession of houses filled with interesting things. A house devoted to seedling Cattleyas and Brassocattleyas contained a varied assemblage of growing seedlings from choice crosses, among which a batch of C. Dowiana aurea crossed with C. labiata alba was pointed out as the source of the beautiful C. Fabia alba. Two houses of Cymbidiums were largely devoted to the handsome C. insigne, but a dozen C. Schrœderi were in bloom. The two are said to grow intermixed, and we understand that a natural hybrid between them has flowered. Of course there were batches of other well-known kinds, and at one end we noted a remarkable Peruvian Xylobium, since described as X. elatum, bearing a very tall scape. Then came a house of Lælia Gouldiana, which is highly valued for cut flowers, and last winter the house was a picture with seven thousand flowers, which were cut a few days before Christmas for market. A house of Cattleyas and allies followed, where we noted several C. Skinneri and var. alba in bloom, C. Warneri × Eldorado, most like the latter, C. intermedia alba, Læliocattleya Hyeana, several Lælia cinnabrosa × Cattleya Mendelii, three of which had buff-coloured flowers and another purple, with several other interesting things, also many capsules, and a plant of the rare C. O'Brieniana alba.

Then came more Odontoglossum houses, where established plants and many hybrids were noted, the latter including a batch of O. Harryanum × Miltonia vexillaria, the remarkable hybrid which was figured at page 177 under the name of Odontonia Cholletii, batches of O. Lairesseæ, and other crosses between Miltonia Warscewiczii and various Odontoglossums, Miltonias, hybrid Cymbidiums, &c., &c., which we must pass over.

A house largely devoted to Oncidiums contained many fine O. concolor and Marshallianum, with a batch of O. Forbesii, and others, and here we

noted Læliocattleya Boylei var. Kerchoveæ and L.-c. Cholletiana in spike. Then came another house containing a fine batch of Cattleya Warscewiczii Sanderiana, a few brilliant forms being in bloom, also a lot of C. Schrœderæ, showing much variation, a few C. Mendelii, Epidendrum Stamfordianum, Brassia verrucosa, Brassavola fragrans, with a spike of nine flowers, &c.

The white forms of Lælia anceps are excellent for cut flowers, and we found a large house of them, the longer bulbs, as compared with the purple-flowered typical form, being pointed out. Then came other houses of Cattleyas and allies, choice Cypripediums, in which we found a lot of the handsome C. Curtisii nobilior in flower, Miltonias, Odontoglossums, Vanda cœrulea, and miscellaneous subjects, some of which we were obliged to miss for want of time. In passing through them we noted a few good Trichopilia suavis and Backhouseana, Lycaste fulvescens with seven flowers, a lot of Anguloas in bud, the brilliant Cochlioda Nœtzliana, Dendrobium Kingianum, various interesting Masdevallias, Epidendrum glumaceum, Oncidium trulliferum, a lot of Saccolabium bellinum, Cœlogyne Mooreana, &c., &c.

In a house of Dendrobiums we noted good forms of D. Dearei, Sanderæ, and the fine D. Schuetzii, forming an interesting trio, D. Brymerianum, crassinode, Jenkinsii, Devonianum, hercoglossum, Bronckartii, and batches of the well-known popular species, while Cœlogyne Dayana with several pendulous spikes was very graceful.

Our notes have become somewhat lengthy, but we have omitted more than we have found space to note, for the establishment is so large, and the standard of culture of so high a class that one cannot do justice to it even in a long article. The hybrid department is an establishment in itself, and the seedlings are so numerous that they overflow into most of the other houses. All are from choice crosses, for the need for selection in the parents is now fully realised, and many sterling novelties may be anticipated as the seedlings reach the flowering stage. We must congratulate Messrs. Sander and their able Chef de Culture, M. Chollet, on the excellent condition of the establishment.

GHENT SUMMER EXHIBITION.

A SUMMER Show, organised by the Cercle Van Houtte, was held in the Palaise de l'Horticulture, Ghent, from August 9th to 17th, and produced a magnificent display, though not so extensive and imposing as the earlier Quinquennial Exhibition held in the same building in April. The arrangements were very successfully carried out by a committee, under the Presidency of Count Joseph de Hemptinne, and the awards were made by an International Jury. Orchids were shown in remarkable numbers, considering the season, and in excellent quality, and on this occasion were

staged together on sloping stages in three wide tiers at one end of the building, with intervening spaces for the convenience of visitors.

In the Amateur's Class for the best and most varied group of Orchids, the Objet d'Art, value 200 francs, was awarded to M. Firmin Lambeau, Brussels, by acclamation, with a magnificent group, including some brilliant Cattleya Warscewiczii, C. W. Frau Melanie Beyrodt, C. W. Deweyi, with a very richly-coloured lip, C. Dupreana, C. Hardyana vars. Triomphe, ardens, and Vogelsang, three very brilliant forms, C. Peetersii Comet, C. Pynaertiana, C. Gaskelliana perfecta, a pretty light form, C. Dowiana, Dendrobium Phalænopsis and Dearei, Oncidium macranthum, Cypripedium Rolfei, and various other fine things, the whole being very effectively arranged.

In the corresponding class for Nurserymen a similar prize was awarded, by acclamation, to MM. Th. Pauwels & Cie, Meirelbeke, the group containing about 350 plants, including some good Vanda cœrulea, V. Parishii, Grammangis Ellisii with two fine spikes, Dendrobium aggregatum, acuminatum, and some excellent D. Phalænopsis, one with a spike of twenty-one flowers, Odontioda Charlesworthii, Lambeauiana, and Diana, fine examples of Cattleya Warscewiczii, C. Gaskelliana alba, C. Rothschildiana alba, with creamy white flowers, Cypripedium Rothschildianum, Bulbophyllum Lobbii with nineteen flowers, Odontoglossum Gladys with sixty-six flowers, some good Phalænopsis, Miltonias, and other fine things.

For the best fifty Orchids (Amateurs) the Objet d'Art, value 100 francs, was won by Dr. Baillion, Ghent, his group containing beautiful examples of Cattleya Hardyana, C. Madame Myra Peeters, several fine C. Warscewiczii, C. President Henri de Wilde, C. Whitei, C. Thurgoodiana, the albino Cypripedium memoria Alma Gevaert, C. selligerum, Vanda cœrulea, a beautiful Miltonia vexillaria Queen Alexandra, Brassocattleya Edmondiana, and a number of brilliant Odontiodas.

In the corresponding class for Nurserymen, M. Maurice Verdonck, Gentbrugge, was first, his group including a beautiful series of Phalænopsis amabilis, Dendrobium regium, Acineta chrysantha, Thunia Marshalliana, a fine Cypripedium Lawrenceanum, Cœlogyne Massangeana, Cochlioda Nœtzliana, Odontioda Charlesworthii, and others. The second prize, a Gold Medal, went to M. René Beheils, St.-Nicholas, whose group included fine plants of Dendrobium Dearei and Sanderæ, Aërides Lawrenceæ, Vanda Sanderiana, Cattleya Gaskelliana and Rothschildiana, Odontoglossum armainvillierense xanthotes, Cypripedium œnanthum, and several fine Oncidium varicosum.

In an Amateur's Class for the best twenty Cattleyas, the Objet d'Art, value 100 francs, was won by Dr. Baillion, Ghent, with a fine group of well-grown plants.

In a corresponding class for Nurserymen, the prize was won by MM. Th. Pauwels & Cie., Meirelbeke, with a fine group.

For the most beautiful Cattleya M. Firmin Lambeau was first, with C. Comet var. Rutilant, a deep purple form, with a darker zone of colour round the front of the lip, and the throat orange-brown. The second prize went to Count Joseph de Hemptinne, St.-Denis, for C. Van Houtte (Warscewiczii × Rothschildiana), a very promising hybrid.

In the class for Læliocattleyas or allied hybrids, M. Firmin Lambeau was first, with Brassocattleya Dietrichiana albescens, having cream-white sepals and petals, and the lip yellow with a rosy margin.

For the most beautiful group of Miltonia vexillaria, the Gold Medal was awarded to M. Charles Dietrich, Anderghem, with felicitations, his group containing a varied and beautiful display of well-flowered plants.

For the best Miltonia vexillaria or hybrid of the genus, the Silver-gilt Medal was also won by M. Ch. Dietrich, with a beautiful plant of M. vexillaria memoria G. D. Owen.

For the most beautiful group of Phalænopsis the Gold Medal was awarded to M. M. Verdonck, with felicitations, the group containing a series of well-grown plants of P. amabilis, bearing about forty-five spikes.

For the most beautiful group of Dendrobiums the Gold Medal was won by MM. Th. Pauwels & Cie, the group containing fine examples of D. Bronckartii, Phalænopsis, Sanderæ, acuminatum, and others.

For the most beautiful group of Cypripedes the Gold Medal was won by M. De Meter, Meirelbeke, with a good group.

For the best and most varied group of Guatemalan Orchids, the Silver-gilt Medal was won by MM. Van de Putte et Cie., Ledeberg, their group including good examples of Odontoglossum grande, Uroskinneri and var. album, Epidendrum nemorale and fragrans, Lycaste Skinneri, and others.

An Objet d'Art, value 200 francs, was offered by M. Francis Spae, General Secretary of the Society, for the best group of plants imported and put into commerce by the late Louis Van Houtte. This was awarded unanimously, and with the felicitations of the Jury, to the Société Anonyme Van Houtte Père, whose group included several interesting Orchids.

A good plant of Vanilla planifolia variegata was exhibited by the Societé Horticole Gantoise, to whom the Gold Medal, offered by His Majesty the King of the Belgians for a group of forty stove plants, was awarded.

In a group of new plants not in commerce, for which Messrs. Sander & Sons, Bruges, gained the first prize, were included Brassocattleya amabilis and Odontioda Hemptinneana.

Non-Competitive Exhibits.

M. Jules Hye de Crom, Coupure, Ghent, was awarded an Objet d'Art,

value 200 francs, for a beautiful group of Orchids, in which Miltonia vexillaria and its varieties and hybrids were represented by about 200 well-grown plants, particularly noteworthy being M. Bleuana, M. Hyeana Flambeau, and M. H. gracilis. Cattleya labiata Susanne Hye de Crom, C. Dupreana Hyeana, and C. Dowiana Mme. J. Hye de Crom, were also excellent, with Masdevallia Harryana alba, Cypripedium Gaston Bultel, C. Massaianum, and a fine Lycaste Skinneri alba.

M. Ch. Vuylsteke, Loochristi, was awarded an Objet d'Art, value 200 francs, for a beautiful group of well-grown Odontiodas, Miltonias, and Odontoglossums, among the former being O. Flambeau and O. Vuylstekeæ var. Carmen, and among the latter O. amabile Roi Albert, O. Hisionii, a beautiful creamy yellow flower, O. Ariadne, O. azureum var. Orion, lilac-purple, O. Themis, dark purple, O. Minos, O. armainvillierense exornatum, and other fine things, all the plants being well-grown and very floriferous.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate, received a Gold Medal for a fine collection of Orchids, noteworthy among them being good examples of Bulbophyllum virescens and grandiflorum, Catasetum Reichenbachianum, Cypripedium superbiens, with a dozen flowers, a fine plant of Phaius Ashworthianus, Peristeria elata, Cypripedium Maudiæ magnificum, Cycnoches chlorochilon, and some good Odontiodas.

M. Joseph de Hemptinne, President of the Cercle Horticole Van Houtte, received an Objet d'Art, value 100 francs, for a group of Orchids, including some fine hybrids of Odontoglossum Harryanum and others, several beautiful Cattleya Warscewiczii, Cypripedium Rothschildianum, Lælio-cattleya Black Prince, a very deep crimson-purple hybrid, a fine specimen of Masdevallia bella, and other good things.

Messrs. Charlesworth & Co., Haywards Heath, received an Objet d'Art, value 100 francs, for a choice group of Orchids in flower, which included Vanda Sanderiana and Maroniæ, Trichosma suavis, some good Cypripedium Charlesworthii, a number of excellent Odontoglossums, and other good things.

MM. Vacherot, Boissy St. Leger, France, were awarded a Gold Medal for Orchids and Carnations, the former including Odontoglossum citrosmum roseum, Odontioda Thwaitesii, Phalænopsis amabilis, a well-flowered plant of Oncidium pulvinatum, and others.

M. Ch. Maron, Brunoy, France, received a Silver-gilt Medal for a good group of Orchids, including Cattleya Kienastiana, a fine C. Hardyana, Læliocattleya Greenwoodii, Vanda cœrulea and Maroniæ, and a number of good Brassocattleyas.

MM. Jean Van de Putte et Cie, Ledeberg, received a Silver-gilt Medal for a group of twenty-five well-flowered Oncidium Wentworthianum, and another for a collection of Orchids used by florists in decorative work.

MILTONIA CHARLESWORTHII.

The annexed figure represents the beautiful hybrid Miltonia Charlesworthii (M. Hyeana × vexillaria memoria G. D. Owen), and is reproduced from a photograph kindly sent by the raisers, Messrs. Charlesworth & Co., Haywards Heath. It will be remembered that Messrs. Charlesworth

Fig. 60. Miltonia Charlesworthii.

received a First-class Certificate for this plant at the R.H.S. Show held at Chelsea in May last, as recorded at page 218. The flowers are very large, and of excellent shape, while the colour is bright rose-pink, with a remarkable crimson-purple mask, resembling a butterfly in shape, at the base of

the lip, as in the handsome variety of M. vexillaria from which the pollen was derived. Messrs. Charlesworth must be congratulated on having raised such a sterling novelty, one of the comparatively small number which have retained the handsome marking of the pollen parent. It may be added that there is a beautiful variety of M. Charlesworthii, called Mrs. Ralli, in the collection of Pantia Ralli, Esq., Ashtead Park, Epsom, which received an Award of Merit from the R.H.S. on July 29th last.

CALENDAR OF OPERATIONS FOR OCTOBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE conditions which have prevailed generally during the present season have been most favourable to the growth of most Orchids. The majority of the plants having made satisfactory growth, everything now depends on the way this growth is matured. When the plants are badly ripened the flowering period is never so satisfactory as when the opposite conditions prevail. Light and air are important factors in Orchid culture, and the amount of sun-heat this season has been above the average, and has enabled the grower to give abundant ventilation without letting the temperature fall too low in the houses.

TEMPERATURES.—During the present month we must begin to place the plants in their winter quarters, and the temperatures of the different houses should be gradually reduced to the minimum degree. Suitable night temperatures for this and the following months are as follows:—

East Indian house: 65° to 70° Fahr.

Cattleya and Mexican houses: 60° to 65°.

Intermediate house: 58° to 60°.

Odontoglossum or Cool house: 55° to 60°.

In the case of extremely cold weather a slightly lower temperature will do no harm, and, in the case of extremely mild weather prevailing, a slightly higher temperature will be beneficial. Slight variations in temperatures do not matter, but when the fluctuations are excessive harm may accrue.

ATMOSPHERIC MOISTURE.—With the lower temperature, the humidity of the atmosphere must be correspondingly reduced, but even at the present season a genial atmosphere must still be maintained. A parched dry atmosphere is as harmful as a cold damp one, and the extreme in either case must be avoided.

VENTILATION.—The admission of fresh air to the houses on all favourable occasions is essential to the well-being of the plants, and therefore should be practised whenever opportunity occurs. Fresh air and light are the principal factors in ripening and consolidating the growths of the plants, and, as previously remarked, an ill-ripened plant cannot withstand

the changeable conditions of the winter months as well as a thoroughly matured one.

Watering is another very important factor in Orchid culture, but the plants vary to such an extent in their individual requirements that no definite rule can be laid down. I should like to emphasise the great diversity in the requirements of different Orchids as regards water at the roots. Two things are mentioned in last month's *Orchid Review* which strongly impress this fact upon me, namely, the case of Cypripedium Rolfei being grown in all loam in MM. Peeters' establishment, and M. Delanghe Vervaene's Orchid culture in leaves. I have previously pointed out in these pages the whole matter of watering and composts must go hand in hand, so to speak, and whenever we alter the latter the former will also require modifying in accordance with the nature of the compost. If any uncertainty is felt as to the application of water to the roots at the present season, it will be wise to err on the side of giving too little rather than too much.

Shading.—All permanent shading should now be dispensed with and the plants inured to all the light possible. In those districts where the sun has much power it may be advisable to run the blind down on bright days for an hour or so, especially if there is any danger of the plants scorching, but the growth being made under such ideal conditions this season they will not be very susceptible to injury from this source.

Odontoglossums.—The repotting of this family should be completed as soon as possible, and those that are not in the desired condition will be best held over until the early spring months. Owing to the many hybrids of very complex parentage, the culture of this family is quite different from what it used to be when only the species and natural hybrids were grown. Plants are now found in all stages of growth at almost any season, especially if the quantity grown is large, and they can therefore be repotted at almost any season of the year, though it is always advisable to postpone the potting of any of this family during a very hot period.

Dendrobiums, as they complete their growth, should be placed in the resting house, as advised last month, and sufficient water should be given them to prevent shrivelling at any time.

Cattleyas and allies should be repotted if they are in need of new rooting material. The present will be found a most suitable season for repotting many species and hybrids which have passed out of bloom. Any that are seen to be pushing new roots may have attention in this respect. I do not hesitate to repot any member of this large family at any season provided new roots are observed to be pushing. The whole of the plants repotted must have water applied to the compost with great care until the new roots have re-established themselves in the new compost. This is the

rock on which many amateurs get wrecked in the cultivation of this gorgeous family.

THUNIAS which have lost their leaves may have the old dried-up pseudobulbs cut away, the new being thoroughly cleaned and the plants put in a dry moderately cool temperature to rest. A similar position to that given to deciduous Dendrobiums will answer their requirements. In large gardens these plants are most useful, and will repay any trouble bestowed upon them to flower them satisfactorily.

CALANTHES.—All species and hybrids of deciduous Calanthes that are pushing up their flower spikes from the base of the newly-made pseudobulbs should be afforded space to develop, and as much light as possible, and also receive water at the roots whenever they become dry. The late-flowering varieties, such as C. Regnieri, should have an occasional watering with weak liquid manure. When the flowers begin to expand drier conditions must prevail, as a damp humid atmosphere soon causes them to spot or become discoloured and fall off. Whilst opening their flowers a temperature of at least 65° should be maintained, but as soon as the blooms are expanded the plants may be placed in a house with a temperature a few degrees lower, where they will last much longer in good condition. As the plants cast their foliage the water supply at the roots should be reduced.

CŒLOGYNE CRISTATA and its varieties, which have now completed their growth, must have the plentiful supply of water hitherto afforded them considerably curtailed, as until after flowering they will only require sufficient to keep the pseudobulbs plump and healthy. At no season of the year, however, should they be allowed to become quite dry. At the present season they should receive all the light and air that can be afforded them in the Cool Intermediate house. It is not advisable to allow those plants to flower that were made up last spring unless they are well rooted and re-established.

VANDAS.—The end of the present month is the best time of the year to thoroughly overhaul plants of V. tricolor and V. suavis, especially those that have grown leggy and require shaking out of their rooting material. There will be far less loss of foliage when this operation is undertaken at this season than when postponed to a later period. These plants must not be exposed to strong light at any time, and a cool, damp, and shaded position in the Cattleya house will be of the greatest assistance in re-establishing themselves without loss of foliage. Although not such favourites as they once were, a well-grown plant with foliage down to the pot is a delightful object. Clean sphagnum moss mixed with small broken crocks forms a suitable compost, and it is very important to fix the plants firmly in their pots, and to prevent the taller specimens from swaying

about, as if it occurs they will surely lose their bottom leaves. Those plants that are well clothed with leaves, and only require new compost, should have the old carefully removed and replaced with new. These plants always succeed much better when stood upon a damp base, and their surroundings should always be kept moist. V. Kimballiana and V. Watsonii are developing flower spikes, and should have sufficient water to keep the sphagnum in a green and growing condition, but when the flowers are fully open the amount of moisture at the roots should be considerably reduced and only sufficient given to keep the leaves firm and plump.

Trichopilias flower at various times of the year, and should therefore be repotted at different seasons, whenever the different species are producing new roots from the base of the new pseudobulbs. T. suavis and T. Backhouseana are most generally grown, but there are others, such as T. fragrans, T. coccinea, and T. tortilis, that are worthy of cultivation. These plants grow best suspended near the roof glass in the Intermediate house, and a similar compost to that given to Cattleyas will answer their requirements. T. fragrans thrives during the summer months in the Cool house, but should be returned to the Intermediate house on the approach of cold weather. Whilst growing actively the plants should be afforded a plentiful supply of water at the roots, but when the season's growth is completed much less will suffice. They delight in a supply of fresh air at all seasons.

General remarks.—At this season of the year every opportunity must be taken to push on all necessary work, which is often very pressing, especially if room is limited. The cleaning and the placing of the plants in their winter quarters takes up much time, and if it is to be effectual must be thoroughly done.

SOCIETIES.

Royal Horticultural.

A meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 9th, when there was a good display of Orchids for the season, and the awards consisted of three medals, two Awards of Merit, and three Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), J. Wilson Potter, R. G. Thwaites, A. McBean, T. Armstrong, W. Cobb, C. H. Curtis, J. Charlesworth, W. H. Hatcher, H. G. Alexander, W. P. Bound, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, R. A. Rolfe, Stuart Low, F. Sander, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), exhibited a very large clump of Spathoglottis zebrina (Fortunei × plicata),

containing about three dozen plants, the majority with yellow flowers, but two or three having white sepals and petals, while a few others were tinged with lilac. All of them most resembled the seed parent in shape.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent a fine plant of Odontoglossum Ceres, with seven flowers, together with the brilliant little Sophrocattleya Saxa and Thwaitesii.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent a fine form of the brilliant Læliocattleya Lustre, having a broad purple band at the apex of the petals.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), sent a plant of the striking Listrostachys caudata.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent two plants of the beautiful Cattleya Hardyana Countess of Derby, with white sepals and petals and a rich purple lip, Brassocattleya Pittiana and heatonensis, Cattleya Thayeriana and Source d'Or, and a few others.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Læliocattleya Anthela (L.-c. Phryne × C. Warscewiczii), having yellow sepals and petals, and a light rose lip, with a paler margin and a few yellow lines on the disc.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. J. M. Black), sent Odontoglossum Wilsonii (Vuylstekei × Rolfeæ), a hybrid of good shape, having yellow sepals and petals blotched with red-brown, and the lip white with some purple markings at the base.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Læliocattleya Mrs. Donald MacMaster (L.-c. luminosa × C. Dowiana aurea), a pretty hybrid, having Indian yellow sepals and petals with darker veins, and a rich ruby red lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very fine group, including a dozen plants of the brilliant Læliocattleya George Woodhams, L.-c. bletchleyensis, L.-c. Schrœderæ Orchidurst var., a very fine form, L.-c. Rainbow (C. Iris × L.-c. Phryne), L.-c. Armstrongiæ Orchidhurst var. (L.-c. George Woodhams × C. Iris), a pretty hybrid from L.-c. Myra × Nysa, Cattleya Prince John (Hardyana × Dowiana Rosita), some fine C. Iris, Germania, and Hardyana, a fine form of Miltonioda Harwoodii, Odontioda Bradshawiæ and Charlesworthii, Brassocattleya Maroniæ, and the interesting little Kefersteinia laminata (Silver-gilt Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the handsome Odontonia Edna, some good Dendrobium Phalænopsis, Oncidium Forbesii, Kramerianum, and incurvum, Cycnoches Egertonianum and chlorochilon, the brilliant Ornithidium coccineum with three well-flowered shoots, Læliocattleya Colmaniana, Miltonia vexillaria,

Epidendrum ciliare, Calanthe violacea, some good Brassocattleya Maroniæ, Spathoglottis plicata Micholitzii, Sophrolælia heatonensis, Lælia monophylla, Bulbophyllum grandiflorum, some brilliant Odontiodas, Odontoglossum Uroskinneri, and others (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a good group, including examples of Cœlogyne pandurata, Brassocattleya Veitchii Queen Alexandra, Cattleya Rothschildiana albescens, some good C. iridescens, C. Euphrasia, C. Nestor (Harrisoniana × Iris), and others (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, sent good examples of Odontioda Charlesworthii, O. Bradshawiæ, and O. Vuylstekeæ Brightness, the latter with some white markings on the segments, Brassocattleya Maronii var. Distinction, a pretty white form with a purple line on the lip, B.-c. Maroniæ, Dendrobium Dearei, Læliocattleya George Woodhams, some good Odontoglossum crispum, and Adoglossum Juno, a remarkable hybrid from Odontoglossum Edwardii and Ada aurantiaca, which was referred to the Scientific Committee.

M.Maurice Mertens, Ghent, sent a white form of Cattleya Hardyana, with six unnamed hybrid Cattleyas, and two blotched Odontoglossums.

Messrs. Sander & Sons, St. Albans, sent plants of Catasetum viridiflavum, C. microglossum, Angræcum infundibulare, Læliocattleya Phœnix, and an unnamed species of Warrea.

Messrs. Swan & Price, St. Albans, sent plants of Cattleya Hardyana, Cypripedium Swanii (bingleyense × Swanianum), most like the former, C. W. R. Lee, Shillianum, Olga Bagshaw, Princess, and Transvaal.

Awards of Merit.

Læliocattleya George Woodhams (C. Hardyana × L. purpurata).—A very fine hybrid, most like the latter parent in general character, and having mauve-purple sepals and petals, and a deep claret-purple lip. The plant bore three racemes and twelve flowers. Exhibited by Messrs. Armstrong & Brown.

Odontioda Seymouriæ Orchidhurst var. (Charlesworthii × Bradshawiæ).—A handsome hybrid, most like the former, and having crimson-red sepals and petals, and the lip with some buff-coloured markings at the sides, and a yellow crest. Exhibited by Messrs. Armstrong & Brown.

Cultural Commendations.

Bulbophyllum Medusæ.—To Mr. G. B. Lees, gardener to E. de Q. Quincey, Esq., Oakwood, Chislehurst, for a very fine specimen, bearing seventeen of its remarkable inflorescences.

Zygopetalum maxillare.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a beautifully-grown specimen, bearing seven racemes of numerous flowers.

Zygopetalum maxillare var. Sanderianum.—To Mr. W. H. White,

Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a fine specimen, bearing six well-developed racemes.

At the meeting held on September 23rd there was a fine display of Orchids, and the awards consisted of seven medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Sir Harry J. Veitch, J. Wilson Potter, R. G. Thwaites, F. J. Hanbury, A. McBean, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, W. H. Hatcher, J. Cypher, W. P. Bound, J. E. Shill, H. G. Alexander, Arthur Dye, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, Sir Jeremiah Colman, Bart., R. A. Rolfe, and C. J. Lucas.

Before the commencement of business the Chairman alluded in feeling terms to the loss which the Committee had sustained by the death of Mr. John S. Moss, whose decease was so deeply deplored by Orchid lovers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group, in which Cattleyas and Læliocattleyas were conspicuous, and included C. Dietrichiana, Pittiana, Venus, Carmen, Iris, and Warscewiczii, L.-c. callistoglossa, L.-c. Clonia var. Amy Leemann, L.-c. luminosa, several L.-c. Bryan, and others, with Odontoglossum grande, Rolfeæ, and a few O. crispum, Lælia splendens, Sophrolælia heatonensis, Cypripedium Sanderiano-Curtisii, and a few others.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Black), received a Silver Banksian Medal for a good group, containing over twenty plants of Cattleya Adula, showing a wide range of variation, with a few other good things.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), sent a very richly-coloured form of Cattleya Freya (Mantinii × Dowiana aurea).

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent a good Cypripedium villoso-Rothschildianum, with two twin-flowered scapes, the flowers being striped with red-brown on a yellowish ground.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent a few showy little plants, namely, Odontoglossum Woodroffeæ, with three very richly-coloured flowers, O. Twyford Gem (Rossii rubescens × formosum), another richly-coloured thing, a fine O. Ceres, with seven flowers, a good Sophrocattleya Doris, and a form of S.-c. Blackii with one very large orange-coloured flower.

W. R. Lee, Esq., Plumpton, Heywood (gr. Mr. Branch), sent a plant of Cypripedium Niobe-Leeanum, with two flowers, most like C. Niobe in general character, but the sides of the dorsal sepal suffused with purple.

Fig. 61. ONCIDIUM CORYNEPHORUM (see p. 323).

Mrs. Temple, Leyswood, Groomsbridge (gr. Mr. Buxton), sent a fine specimen of Cypripedium Ashburtoniæ, bearing twenty-four scapes, about fifteen of them being twin-flowered.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group of Orchids, including samples of Cattleya Iris, Atalanta, Armstrongiæ, suavior, and others, Læliocattleya Marquis de Wavrin, Duchess, eximia, and a fine hybrid from L.-c. Haroldiana × C. Dowiana aurea, with purple sepals and petals and a dark blackish purple lip, with another from C. Harrisoniana × L.-c. George Woodhams; also Brassocattleya Maroniæ, Cypripedium pedium Niobe, Victory, Holdenii, Baron Schröder, and a few others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including Angræcum infundibulare, Listrostachys Chailluana, Odontoglossum armainvillierense xanthotes, Dendrobium Dearei, Oncidium incurvum and cheirophorum, Odontonia Lairesseæ, Oncidioda Charlesworthii, Zygopetalum maxillare Gautieri, Vanda cœrulea, Epidendrum vitellinum autumnale, Miltonia vexillaria robusta with an eight-flowered spike, Catasetum macrocarpum, Odontioda Brewii with a very large clear crimson flower, and the crest of the lip orange, fine examples of Læliocattleya callistoglossa, Dominiana, Bola, Colmaniana, and Thyone, Cypripedium Rossetti, Fairrieanum, leyburnense, and A. de Lairesse, Cattleya Parthenia, Antiope, Adula, Alameda, and Sophrolælia Gratrixiæ (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including the striking Odontonia McNabiana (O. Edwardii ♀ × M. Bleuana ♂), bearing a spike of ten rich violet-purple flowers with an orange yellow crest, a fine Miltonia St. Andre, Sophrocatlælia Medeia, Cattleya Iris, nobilis, Mantinii, mollis, Mrs. Pitt, and Acestis, Dendrobium Dearei, Saccolabium acutifolium with ten inflorescences, Cœlogyne brunnea and Mooreana, two fine Vanda cœrulea, Læliocattleya Phœnix, Cypripedium Pyrrha (Thalia × Baron Schröder) and C. Maudiæ, the rare Bulbophyllum bisetum, and a few Odontoglossums (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged an interesting group, including a fine example of Habenaria Susannæ, Oncidium incurvum album, Odontoglossum grande, the rare Chondrorhyncha fimbriata Bulbophyllum grandiflorum, Miltonia vexillaria Leopoldii, M. Phalænopsis, and M. spectabilis Moreliana, Cypripedium Niobe superbum, Boltonii, triumphans, Felicity, Argo-Fairrieanum, Thalia giganteum, Leoniæ Gratrix's var., Earl Egerton, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged an interesting group, including several good examples of Cattleya Dowiana aurea, Hardyana, Iris, and Minucia, C. iridescens, Thurgoodiana, Adula, and Peetersiæ, with Brasso-

cattleya heatonensis, Cypripedium triumphans, A. de Lairesse, and others (Silver Banksian Medal).

Messrs. Mansell and Hatcher, Rawdon, E. Yorks, exhibited Odontioda rawdoniensis (Odontoglossum armainvillierense × Odontioda Charlesworthii), a very brilliant and promising hybrid. The tiny plant bore a single flower, with very broad deep cherry-red sepals and petals, and a three-lobed lip, the crest of which was orange, and there was also a tint of orange on the front lobe.

Awards of Merit.

Cattleya Cybele (Lueddemanniana var. Baron Schröder × Gaskelliana alba).—A fine blush white hybrid, with a large crimson-purple blotch on the front lobe of the lip, and the throat yellow. Exhibited by E. H. Davidson, Esq.

Læliocattleya Armada (L.-c. luminosa × C. fulvescens).—A very pretty hybrid, with fawn-coloured sepals and petals, and an open purple lip, with many pale yellow lines. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).

Cultural Commendation.

Oncidium corynephorum.—To Messsrs. Armstrong and Brown, for a very finely-grown plant, bearing a panicle with seven side branches, and an aggregate of twenty-five of its beautiful white and purple flowers. This beautiful species received a First-class Certificate from the R.H.S. in October, 1905, when exhibited from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. Its history was given at pp. 334-336 of our thirteenth volume. The figure given at page 321 represents Mr. Ashworth's plant about one-fourth natural size.

Manchester & North of England Orchid.

At the meeting held at the Coal Exchange, Manchester, on August 21st, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, E. H. Davidson, A. G. Ellwood, H. Hanmer, A. J. Keeling, D. McLeod, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a nice mixed group, to which a Silver-gilt Medal was awarded. Odontoglossums were well represented, including O. crispum xanthotes Charlesworthii, O. c. Perfection and O. c. Wellmanii, with Odontioda Charlesworthii, Miltonia vexillaria superba, Cattleya Gaskelliana alba, Hardyana, and Caduceus, Cypripedium Maudiæ, Transvaal, Harrisianum superbum, Oporto, Rolfei, and Lord Derby, a fine example of Vanda cœrulea carrying twenty-four flowers on two spikes, and others.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was awarded a

Silver Medal for a good group, including Odontoglossum crispum vars. Queen Victoria and Warburtonianum, ardentissimum Vanguard, Odontioda Charlesworthii, Miltonia Schrœderæ, Cattleya Leopoldii and Warscewiczii Sanderiana, Cypripedium A. de Lairesse, gigas Corndean Hall var., Shillianum, Maudiæ, Olga Bagshaw, Actæus revolutum, and others.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), was awarded a Silver Medal for a small group of Cypripediums, including C. Olivia, Lord Derby, Frau Ida Brandt, Chapmanii, Baron Schröder, Richmanii, cherubicum, Lord Ossulston Crombleholme's var., leyburnense magnificum, and others.

Mr. D. McLeod, Chorlton-cum-Hardy, sent Odontoglossum crispum Reine Blanche.

Mr. J. Birchenall, Alderley Edge, sent Cypripedium Mars.

FIRST-CLASS CERTIFICATES.

Odontoglossum Woodroffeæ (O. Rossii rubescens × Queen Alexandra). —The best of its kind, with large flowers of good colour, and well spotted, and Cattleya Harrisoniana alba Davidson's var., a good round flower, with the lip broad at the base, both from Mr. E. H. Davidson, Twyford, Berks.

Odontoglossum crispum virginale Ashlands var., with well-formed flowers of good substance, from R. Ashworth, Esq.

AWARD OF MERIT.

Cypripedium Muriel Hollington, a nice variety, with large flowers, from the Rev. J. Crombleholme.

THE AMATEUR'S COLLECTION.

BY C. ALWYN HARRISON, F.R.H.S.

WINTER treatment must now be the order of the day, and for this and the ensuing month the average temperatures should be: By day 55° to 65° Fahr.; by night 53° to 60° Fahr.

Obviously the above figures can only be regularly maintained by the employment of artificial heating, for it is better to have the pipes warmed and thereby make ventilation possible, than to defer using fire heat, and endeavouring to keep the house sufficiently warm by closing and relying on the heat of the sun. One of the main secrets of successful Orchid culture depends on keeping the temperatures as even as possible, and in having inside the house a nice buoyant atmosphere.

As the days are now beginning to draw in, less water must be applied to the plants, and if in doubt as to whether a plant needs water or not, my advice to the amateur is to wait until the following day. The majority of the failures sustained by beginners in Orchid culture are due to keeping their plants in a sodden condition during the long dull winter months. An

overdose during the summer does not do anything like the same amount of harm, as moisture quickly evaporates at that season. Nothing is more detrimental to the health of an Orchid than to have a mass of chilly damp moss round its roots, and for this reason I always prefer to have the sphagnum well mixed together with the other ingredients of the compost, as it is then more evenly distributed and does not get into a sodden mass.

Damping down will now have to be restricted to twice a day, when sunny weather prevails, and only once should fogs and continuous rain occur. The roller blinds may now be removed and stored away in a dry shed for the winter, as no further shading will be necessary.

The principal treatment this month will consist in carefully going over every plant, sponging its leaves with tepid rain water, cutting away any dead or decaying portions, and in keeping a sharp look out for insect pests.

Cymbidiums will now probably be throwing up their long flower spikes, at least such varieties as Tracyanum, Winnianum, early Lowianum, and some of the beautiful hybrids of insigne, notably Doris, Gottianum, Schlegelii, and Pauwelsii. These plants should be placed in as light a position as possible, watering them well and giving once a week a dose of weak diluted cow manure.

It is now, in my opinion, too late to attempt the repotting of Odontoglossums, and therefore any which were not done last month had better be left over until the following spring. A plant of this genus, if repotted now, has not the necessary amount of time to become properly re-established before the winter sets in and often fails to recover itself until the bright days of spring commence, and, besides causing the cultivator much worry, several months of growth are wasted.

During the winter months it will be found a good plan to erect a shelf a few inches from the roof glass at the eaves of the house, and to place here any small seedlings and also weakly plants, where they will benefit from obtaining all possible light. Special care, however, must be taken to avoid a chill when the plants are so close to the glass, and it may be advisable to remove them during frosty weather.

THE WALLICHIAN HERBARIUM.

THE last issue of the *Kew Bulletin* contains an important account of the Wallichian Herbarium, which was originally presented to the Linnean Society of London by the Court of Directors of the East India Company, and which has since been held in trust by the latter for the general benefit of science. The Herbarium contains an extensive series of Indian plants, including a large number of Orchids, which were described by Dr. Lindley in his *Genera and Species of Orchidaceous Plants*. A demand for additional space led the Society to desire that the collection might find another home,

and at a Special General Meeting held on April 3rd, 1913, the Herbarium was offered to Kew. The offer was accepted, and the transfer of the Herbarium took place on July 11th last. The mahogany-faced cabinets in which the plants were contained were the property of the Society, but these were transferred to Kew in consequence of the generous gift, by Sir Frank Crisp, Bart., of the sum at which they were valued by the Council, and this gift allowed the Herbarium to be transferred intact. It forms a very valuable addition to the Kew collections.

ORCHIDS AT KEW.

CYPRIPEDIUMS are making quite a bold display, especially in the Warm division, where a number of species and hybrids are in flower. The charming C. Maudiæ (Lawrenceanum Hyeanum × callosum Sanderæ) attracts much attention. Another hybrid which should be useful commercially is C. gigas, as it is very floriferous, and the flowers are bold and the dorsal sepal very large and good in shape and colour. C. Franconia (callosum × Rothschildianum) is another splendid example, the latter parent being decidedly favoured, and, like C. gigas, it is usually twin-flowered. C. Minnie (Curtisii × concolor) is much like C. Curtisii in shape, but has more of the colouring of C. concolor. Among other good things in the same house are C. Veronicus, St. Alban, Rossetti, Kubele, Bella, Asburtoniæ and Harrisianum superbum. A nice batch of Phalænopsis Esmeralda are flowering freely, and these plants do best near the glass of the warm Intermediate house.

In the Cool house there are some good forms of Cypripedium Charlesworthii, Niobe Westonbirt var., Baron Schröder, Charlesianum, and several plants of the beautiful C. insigne var. Sanderæ. Lælia monophylla is a very useful subject for the Cool house, and is easily grown. The flowers are bright orange-scarlet, and will last quite six weeks in perfection. A good specimen of Pleurothallis pulchella is flowering freely, producing two and sometimes three spikes at the apex of each growth, with numerous pale green flowers. Several Miltonias are in bloom, the richly-coloured M. Cognianxiæ being especially fine, while the variety bicolor has the sepals and petals almost white, and the lip prettily suffused with purple. Two plants of M. candida promise a fine display of bloom, and one specimen has twenty-two good spikes. One or two other plants which brighten the Cool house just now are Miltonioda Ajax (Cochlioda Nœtzliana × Miltonia Schrœderiana), two plants of Odontioda Charlesworthii, one being a remarkably fine variety. Several Odontoglossums are in flower, including some good plants of the popular O. grande and the diminutive O. Krameri.

In the Cattleya house a numerous series of showy Cattleyas and

Læliocattleyas are in flower, and one of the best of the latter is L.-c. Priam (C. Harrisoniana × L.-c. callistoglossa), having soft pink flowers. Govenia lagenophora is a plant of great botanical interest, for it has a large sheath which almost envelopes the erect bulb and forms a receptacle for water. This sheath should be kept full of water during the growing season. The flowers are curious in colour, the ovary being bright purple, the sepals yellow, the petals purple intermixed with yellow, and the lip yellow with three brown spots on the upper side. Oncidium ornithorrhynchum and its pure white var. album are flowering well, and several plants of O. varicosum are making a fine display. The three pretty little Pleiones, lagenaria, maculata and præcox, are again in bloom, with a group of Vanda Kimballiana, a good plant of Epidendrum Ruckeræ with seven racemes, E. Cooperianum, Maxillaria grandiflora, and various other interesting autumn-blooming things. H. L. S.

ORCHIDS IN SEASON.

A VERY pretty white form of Miltonia spectabilis with a purple base to the lip, is sent from the collection of W. Waters Butler, Esq., Southfield, Edgbaston. It is said to have been included with other plants as M. Moreliana dark var. at the Sale at which it was obtained, but proves to be the original M. spectabilis, Lindl. The two are known to grow together, and although the white was first described we are inclined to think the other is the commoner, and thus typical, form. If the plants were imported this might account for this mixture, for such a case was recorded in our pages in 1906 (*O.R.*, xiv. p. 297), when M. spectabilis var. radians and Moreliana were figured together. All are charming autumn-flowering Orchids.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during October, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on October 16th and 30th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 o'clock p.m.

The impending retirement of Sir Harry J. Veitch and the disposal of the nursery business of Messrs. James Veitch & Sons of the Chelsea, Coombe Wood, Langley and Feltham Nurseries was recently announced. We now learn that the seed business, carried on at Chelsea for the past

sixty years has been purchased by Messrs. Sutton & Sons, Reading, also the principal part of the seed grounds at Langley, and will be transferred to the latter as from October 1st, 1913. Messrs. Veitch's Nursery trade will, however be carried on at Chelsea, Langley, and Feltham until Sir Harry J. Veitch retires altogether from business.

The Langley Orchid Nursery of Messrs. James Veitch & Sons, with the entire stock of Orchids, hybrid and otherwises has been acquired as from October 1st, 1913, by Mr. Sidney Flory, Twickenham, and Mr. J. M. Black, Streatham Hill, who will carry on the business under the style of Messry. Flory and Black, Orchid Nursery, Slough, Bucks. Both the partners have a long experience, Mr. Flory having carried on the Orchid Nursery, Twickenham, since the death of Mr. H. A. Tracy, with whom he had long been associated, and Mr. Black having been for many years Orchid grower to R. G. Thwaites, Esq., Chessington, Streatham Hill. where Orchid raising has long been a speciality. We wish the new firm success, and it starts under very favourable auspices, for Messrs. Veitch have an extensive stock of choice hybrids.

ORCHID PORTRAITS.

BULBOPHYLLUM MEDUSÆ.—*Garden*, 1913, p. 188, with fig.

CATASETUM MICROGLOSSUM, Rolfe.—*Bot. Mag.*, t. 8514.

CATTLEYA LAWRENCEANA.—*Gard. Chron.*, 1913, ii. p. 156, with coloured plate.

CATTLEYA MENDELII QUEEN ALEXANDRA.—*Journ. Hort.*, 1913, ii. p. 303, with fig.

DENDROBIUM DEAREI MCBEAN'S VAR.—*Gard. Mag.*, 1913, p. 725, with fig.

LÆLIOCATTLEYA GEORGE WOODHAMS.—*Gard. Mag.*, 1913. p. 705, with fig.

ODONTIODA BRUGENSIS VAR. EILEEN.—*Gard. Mag.*, 1913, pp 649, 662, with fig.

VANDA SANDERIANA (specimen).—*Horticulture*, 1913, p. 361, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.B.S.—We have made enquiries about a plant of Renanthera Rohaniana, but have not yet been able to secure one. We shall be glad if any of our correspondents who may have a plant for disposal will communicate with us.

F.S.—Lissochilus stylites, Rchb. f. and Plearothallis lonchophylla, Rchb. f.

Photographs received, with thanks.—Ch. & Co.; G.B.S.

F.P.—We have failed to identified the plant and suspect it may be new.

Catalogues received.—Descriptive Catalogue and Offer of Orchids from Messrs. A. J. Keeling & Sons, Bradford, Yorks., containing a good selection of species and hybrids, with prices, and a number of illustrations.

THE ORCHID REVIEW.

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CATASETUM DARWINIANUM.

LAST autumn a plant of Catasetum Darwinianum at Kew produced an inflorescence with three male flowers, a single female, and one other in a transition state, as recorded at page 316 of our last volume. A photograph and account of the plant have since been given, together with a history of sexuality in the genus (Rolfe in *Kew Bulletin*, 1913, p. 99-102, with plate). The phenomena illustrated were long a profound puzzle to botanists and plants bearing female flowers were originally referred to a distinct genus by Lindley, under the name of Monachanthus, while the males of others, structually identical with C. Darwinianum, were referred to Myanthus, because differing from the original Catasetum macrocarpum, Rich. When at length an inflorescence was sent to him by the Duke of Devonshire, combining two of his supposed genera, he remarked that Myanthus and Monachanthus must be restored to Catasetum, adding: "But which of the species have their masks on, and which show their real faces, I certainly will not presume to guess."

The question was the subject of a noteworty paper by Darwin, "On the Three remarkable Sexual Forms of Catasetum tridentatum," published in 1862, in which he sought to show that C. tridentatum, Hook., produced three different kinds of flowers, representing male, female, and hermaphrodite states of the same species. He established the fact that the sportive character of Catasetum, or its curious habit of suddenly producing flowers of a totally different kind on the same plant, was simply an abnormal combination of different sexual forms in the same individual, but he failed to discover that the name Monachanthus viridis included more than one species, in fact he misread some remarks of Schomburgk, who had stated that Monachanthus alone bore seeds, and had expressed the opinion that the three genera formed but a single one. The consequence was that Darwin, while establishing the fact that Catasetum was male and Monachanthus female, thought that Myanthus barbatus was a hermaphrodite form of the same species. This view passed as correct for many years, until a re-examination of all the records, aided by some fresh material, enabling the writer to clear the matter in a paper "On the

sexual Forms of Catasetum, with special reference to the remarks of Darwin and others."

It was shown that the females of three different Catasetums passed under the name of Monachanthus viridis, and that Myanthus barbatus was the male of one of them, and distinct from C. tridentatum, with which it had been confused. It was also shown that the species could be arranged in four very natural sections, Eucatasetum, Myanthus, Ecirrhosæ, and Pseudocatasetum, whose characters were given.

Catasetum Darwinianum is a native of Mt. Roraima, whence it was introduced by Messrs. Sander, and flowered at Kew in 1887, producing a male and a female inflorescence on either side of the same pseudobulb, thus being very different from the condition in which it more recently flowered. A painting, natural side, of the plant as it flowered originally is preserved at Kew. The species was named in compliment to the great naturalist, Charles Darwin, but was not one of those investigated by him in his work.

At the present time the females of some twenty species are known, representing about a third of the genus, so that there is still plenty of scope for those who may be able to observe the plants in their native wilds or to cultivate them at home. It is greatly to be desired that this blank in our knowledge should be filled up.

The economy of fertilisation in the genus is remarkable. The propulsion of the polinia by means of the sensitive antennæ was fully explained by Darwin, and the method of fertilisation in C. tridentatum was afterwards described and illustrated by Crüger, who was able to observe the species in Trinidad, where it is common. The visiting insect is described as a large humble bee, noisy and quarrelsome, which visits the flowers of both sexes for the purpose of gnawing some cellular tissue in the interior of the sac. On visiting the male flowers the pollen masses are thrown on the back of the insect, and Crüger had often seen them flying about with this peculiar-looking ornament on them. On subsequently visiting the female flower the pollinia were caught by the upper margin of the stigmatic cavity, and were left behind on the retreat of the insect. The function of the sensitive antennæ in the sections Eucatasetum and Myanthus is thus apparent, but these organs are not developed in the more primitive Ecirrhosæ and Pseudocatasetum, so that some other mechanism must be available, which it would be interesting to work out.

The scarcity of female as compared with male flowers is well known, in connection with which the following note by Rodway is suggestive: "In some species of Catasetum there are male and female flowers, quite distinct in appearance the one from the other, and, what is most curious, borne on the same plant at different times. It appears as if the Orchid is able to

choose whichever of these it is able to bring to perfection. The male neccessarily requires a less continuous strain, as it is saved from the labour of ripening the capsules, which takes several months. When, therefore, the plant is comparatively weak, only male flowers are produced, but when the pseudobulbs are plump and strong, females."

Catasetum is one of the most remarkable genera in the whole family, and is only paralleled by the allied genus Cycnoches, whose history was given at pp. 269-274 of our seventh volume. In Mormodes, the other genus of the group, the sexes are not separated.

CATTLEYA LODDIGESII ALBA.

A VERY fine flower of this chaste variety is sent from the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt, by Mr. Alexander, who remarks that it is one of a spike of seven flowers. It was obtained under the name of Cattleya Harrisoniana alba Stanley's variety, but the absence of the characteristic bright yellow corrugated disc shows that it belongs to C. Loddigesii, of which it has precisely the shape and the very ample side lobes. The flower has an expanse of over four inches, and the petals are over an inch broad. The colour is white, with a pale sulphur tinge on the base of the front lobe of the lip, which colour extends round the side lobes near the margin.

The corresponding form of C. Harrisoniana is known as C. Harrisoniana candida, and has been known for upwards of sixty years. Its original appearance is uncertain, but it was mentioned by Mr. B. S. Williams under the name of C. candida (*Gard. Chron.*, 1851, p. 543), as a beautiful autumn-flowering white variety, and afterwards it was referred to a variety of C. Harrisoniana. A more definite record was given by Mr. John Day, who drew it in July, 1863 (*Orch. Draw.*, iii. t. 41), and again ten years later (*l.c.*, xviii. t. 29). He remarks: "I received this from Messrs. Loddiges & Co. in 1852, being one of fifty Orchids I bought from them for £50, and which Mr. Conrad Loddiges said he hoped and expected would be the means of inoculating me with the love of Orchids. It is a mere variety—white-coloured—of Cattleya Harrisoniana. It has the same corrugated lip, and is precisely the same in all respects but colour. It is a very charming thing, and blooms in August and September when it is much wanted." The typical C. Harrisoniana was also one of the fifty, as recorded by Mr. Day when painting it (*Orch. Draw.*, xi. t. 89), and from this circumstance we may infer that Messrs. Loddiges obtained it in an importation of C. Harrisoniana. It is unfortunate that the names of C. Loddigesii and C. Harrisoniana have been transposed in some collections—probably through the sale of imported plants under the wrong names—but they were correctly understood in Mr. Day's time, and he also drew C. Loddigesii

(*Orch. Draw.*, xviii. t. 27), with details of the lip, to show the difference between the two. The history of the confusion has already been pointed out (*O.R.*, vi. p. 299; xii. pp. 353-356). R. A. ROLFE.

ORCHIDS IN SEASON.

FLOWERS of two handsome hybrids, flowering for the first time, are sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. F. W. Thurgood. The first is Brassocattleya Pittiana, obtained from Cattleya Whiteleyæ × Brassocattleya heatonensis. The flower most resembles the Cattleya parent, both in shape and in the brilliant colour, the latter a character in which many Brassocattleyas are deficient. The sepals and petals are broad, 2¾ inches long, and bright rose-purple, while the lip is rose-purple, with some light yellow in the throat. There are two seedlings, the lighter-coloured one having the lip more undulate and fringed than the other. A seedling of this batch flowered last year, and was recorded at page 338 of our last volume. The latter is called Brassocattleya William Pitt, and is derived from Cattleya Octave Doin × B.-c. Mariæ. The flower is considerably larger than in the preceding, the sepals and petals being 3½ inches long, and lilac-rose in colour, while the lip is rather darker, well-fringed, and with some light yellow in the throat. Both should develop into good things when the plants become strong.

Flowers of a handsome Brassocattleya are sent from the collection of G. Marchetti, Esq., Manor Heath, Halifax, by Mr. J. C. Johnson, who remarks that the plant is labelled C. granulosa × aurea × B. Digbyana. This record, we believe, means Cattleya Pittiana (granulosa × Dowiana aurea) × Brassavola Digbyana. The flowers are much like those of B.-c. Leemanniæ in general character. having light yellow sepals and petals, and a much fringed lip, with some reddish suffusion. The chief difficulty we see is that the lip is not strongly three-lobed as in B.-c. Pluto, the hybrid from C. granulosa. Theoretically this hybrid should be intermediate between B.-c. Pluto and B.-c. Leemanniæ. Perhaps it may be possible to verify the parentage in future, and to see what other seedlings from the batch are like.

A flower of the charming Cattleya Venus (Iris × Dowiana aurea) is sent from the collection of Dr. Hans Goldschmidt, Essen-Ruhr, Germany. It is most like the C. Dowiana parent in shape, having an entire crimson lip, with yellow veining, and a rosy suffusion in the sepals and petals.

A flower of a brilliant form of Læliocattleya Robsoniæ has been sent from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. It was raised from Cattleya Bowringiana crossed with the pollen of Lælia Ingramii (L. Dayana × C. Dowiana), part of a plant obtained from Messrs.

Hugh Low & Co. some twelve or fourteen years ago, and is said to resemble the seed bearer in habit except that some of the bulbs have one and some two leaves. It is a remarkably brilliant flower, with very broad deep rose-purple segments, and some yellow on the disc of the well-expanded lip. It has retained some of the C. Dowiana fragrance, but the influence of Lælia Dayana is hardly apparent.

A very fine form of Cypripedium Leeanum has been sent from the collection of J. U. Hodgson, Esq., Bebington Hall, Birkenhead. The dorsal sepal is $2\frac{3}{4}$ inches broad, white, with a green base and a few brown dots, while two rows of purple dots extend to the apex. The petals and lip are quite typical in character. It was raised in the collection.

PARTHENOGENESIS.

AT a meeting of the R.H.S. Orchid Committee held some months ago Mr. John S. Moss, Wintershill, Bishops Waltham, showed a flower of a fourth generation of *Zygopetalum Mackayi* crossed with the pollen of Odontoglossum crispum, which still reproduced the *Zygopetalum* unmodified. A note on the same plant is given at page 111, and it is now clear fhat hybrids need never be expected from such a cross. Messrs. McBean, Cooksbridge, have also crossed Epidendrum radicans with the pollen of Bletia Shepherdii, and raised about a hundred seedlings, none of which show a trace of the Bletia, and one has now flowered. It is evidently another case of parthenogenesis, and the more curious because of the well-known difficulty of getting capsules of the Epidendrum when pollinated with other genera. This is probably due to some mechanical difficulty, either in the relative size or length of the pollen tubes and the micropyle of the ovules or in the relative times required by these diverse species to reach maturity, and the ovules then continue to develop and mature in the absence of fertilisation.

The term "False hybrids" has been applied to such cases among Orchids, and we are asked whether that of "Parthenogensis" can be strictly applied. We believe it can, for the term is applicable to any sexual bud that matures and reproduces the organism without fertilisation. Of course in this case there is something additional, for the ovules of Orchids are only developed as the result of pollination, but the stimulus to development can be set up by foreign pollen which is not capable of subsequently effecting fertilisation, hence the ovules proceed no further, except in the anomalous cases under discussion and others which have been recorded. It is a case of the development of the ovules as the result of the stimulus of pollination, and as the alien pollen tubes do not enter the micropyle of the ovule there can be no transmission of paternal characters. A note on the subject appears at pp. 141, 142 of our last volume.

CŒLOGYNE FUSCESCENS AND ITS ALLIES.

THERE is a group of green and brown autumn-flowering Cœlogynes whose history has been much confused, but a comparison of living flowers from three different collections, and additional dried specimens, enables some of the confusion to be cleared up.

CŒLOGYNE FUSCESCENS is the earliest known member of the group. It was described by Lindley, in 1830 (*Gen. & Sp. Orch.*, p. 41), from dried specimens collected in Nepal by Wallich. It was afterwards collected in the Khasia Hills by Hooker and Thomson, and in Sikkim by Sir J. D. Hooker. In Sikkim it is said to grow at 3000 to 5000 feet elevation, flowering from October to December. It is figured by King & Pantling (*Ann. R. Bot. Gard. Calc.*, viii. p. 132, t. 182). It is not certain when it was first introduced to cultivation, for although recorded as flowering at Sion House in 1843 (*Lindl. Bot. Reg.*, 1844, Misc. p. 1), the record clearly belongs to the following. The earliest garden specimens we have seen date from 1882, though it may have been cultivated earlier.

CŒLOGYNE BRUNNEA was described by Lindley in 1848 (*Gard. Chron.*, 1848, p. 71, with fig.), from a plant which is said to have flowered at Sion House in the autumn of 1844, and afterwards in other collections. Its origin was apparently not known. Six years later Lindley recorded it as C. fuscescens var. brunnea (*Fol. Orch.*, Cœlog, p. 11), giving the localities as Khasia, 3000 ft., Hooker & Thomson; Sikkim Himalaya, 4000 ft., J. D. Hooker. These, however, both belong to typical C. fuscescens, Lindl. In 1865 it was figured in the *Botanical Magazine* (t. 5494) under the latter name, when its history was given by Mr. James Bateman. After alluding to its original introduction, he remarks: "It would seem to have been almost immediately lost—at all events I am not aware that it has ever blossomed a second time. This circumstance is the more remarkable since the plant, which Messrs. Hugh Low & Co. have lately re-introduced, is now found to grow freely and flower profusely under the most ordinary treatment. It is a native of Moulmein, from whence it was sent by Mr. Parish to Messrs. Low. It has already blossomed in several places, but the finest specimens were produced in Mr. Day's collection, and from these, with his kind permission, the accompanying figure was prepared. The species flowers in the winter months, and continues in beauty for several weeks." From a note by Mr. Day it appears that the plant was also drawn by Mr. Durham, and this drawing is probably now in the fine collection of Sir Jeremiah Colman, Bart. A single flower was drawn by Mr. Day, but this is said to have been from another plant, imported by Messrs. Hugh Low & Co. from Moulmein. This species has recently been collected near Chengmai, Siam, by Dr. Alexander Kerr, who found it on

trees in shady valleys at 4000 to 5000 feet elevation on Doi Sutep. We do not know if it is in cultivation at the present time.

CŒLOGYNE ASSAMICA was described in 1857 (Linden & Rchb. f. in *Berl. Allg. Gartenz.*, 1857, p. 403). It is said to have been received from Assam, and to have flowered with Mr. John Linden in December, 1857. Soon afterwards it was figured by Reichenbach (*Xen. Orch.*, ii. p. 111, fig. 2). It is most like C. brunnea in the strongly three-lobed lip, but has smaller flowers, with lighter sepals and petals. There are specimens preserved at Kew from several collections, and in two cases the plants are said to have been imported from Burma. It is now flowering at the Royal Botanic Garden, Glasnevin, in the collection of Sir Trevor Lawrence, Bart., and with Messrs. Sander & Sons.

CŒLOGYNE CYCNOCHES was collected by the Rev. C. Parish on Dauna Toung, Moulmein, at 4000 feet elevation, and was described from dried specimens and a painting (Par. & Rchb. f. in *Trans. Linn. Soc.* xxx. p. 147). It was recorded as rare, and is still only known from Parish's original specimen and drawing. It has light green flowers, and a strongly three-lobed lip, with acute lobes, and some radiating brown stripes on the front lobe.

The foregoing were placed in a distinct section of the genus, called Fuscescentes, by Pfitzer (*Engl. Pflanzenr.*, Orch. Cœlog., p. 42), but he only admitted two species, C. fuscescens, with three varieties, and C. Cycnoches. The arrangement does not accord with the characters of the plants, and there is much confusion. Of the typical C. fuscescens he gives several localities, of which Burma must be excluded, as belonging to var. brunnea, while his figures A and B, given as representing the type, belong to his var. assamica. The latter is based on C. assamica as originally described, without any additional information. Under var. brunnea he includes the original Moulmein plant and another from Yunnan, having rather smaller flowers. Then comes a var. integrilabia, with fig. C, based on Lindley's var. A.—which is the original C. fuscescens, and the single locality, "Penang Wallich, 1962," which is erroneous. The fact is Wallich included two plants under his 1962, one from Nepal, which is C. fuscescens, Lindl., and another from Penang, the latter being C. macrobulbon, Hook. f., which is identical with the older C. Rochussenii, De Vriese. Pfitzer's fig. D., purporting to represent C. Cycnoches, was copied from a drawing on the Kew sheet, but is incorrect, representing a plant with a broader lip, very obtuse side lobes, and five keels on the disc. It is a sad record of confusion. The materials are hardly adequate at present to say whether C. brunnea and C. assamica are distinct or forms of a single species, but C. fuscescens is easily separated by its nearly obsolete side lobes, besides being geographically distinct.

R.A.R.

A PIONEER ORCHID FIRM.

MESSRS. JAMES VEITCH & SONS.

THE retirement of Sir Harry J. Veitch and the sale of the important business of Messrs. James Veitch & Sons provides an opportune occasion to review the history of the firm in its long and successful connection with Orchidology, extending over a period of more than three-quarters of a century.

The initiation of the business was due to Mr. John Veitch, who, towards

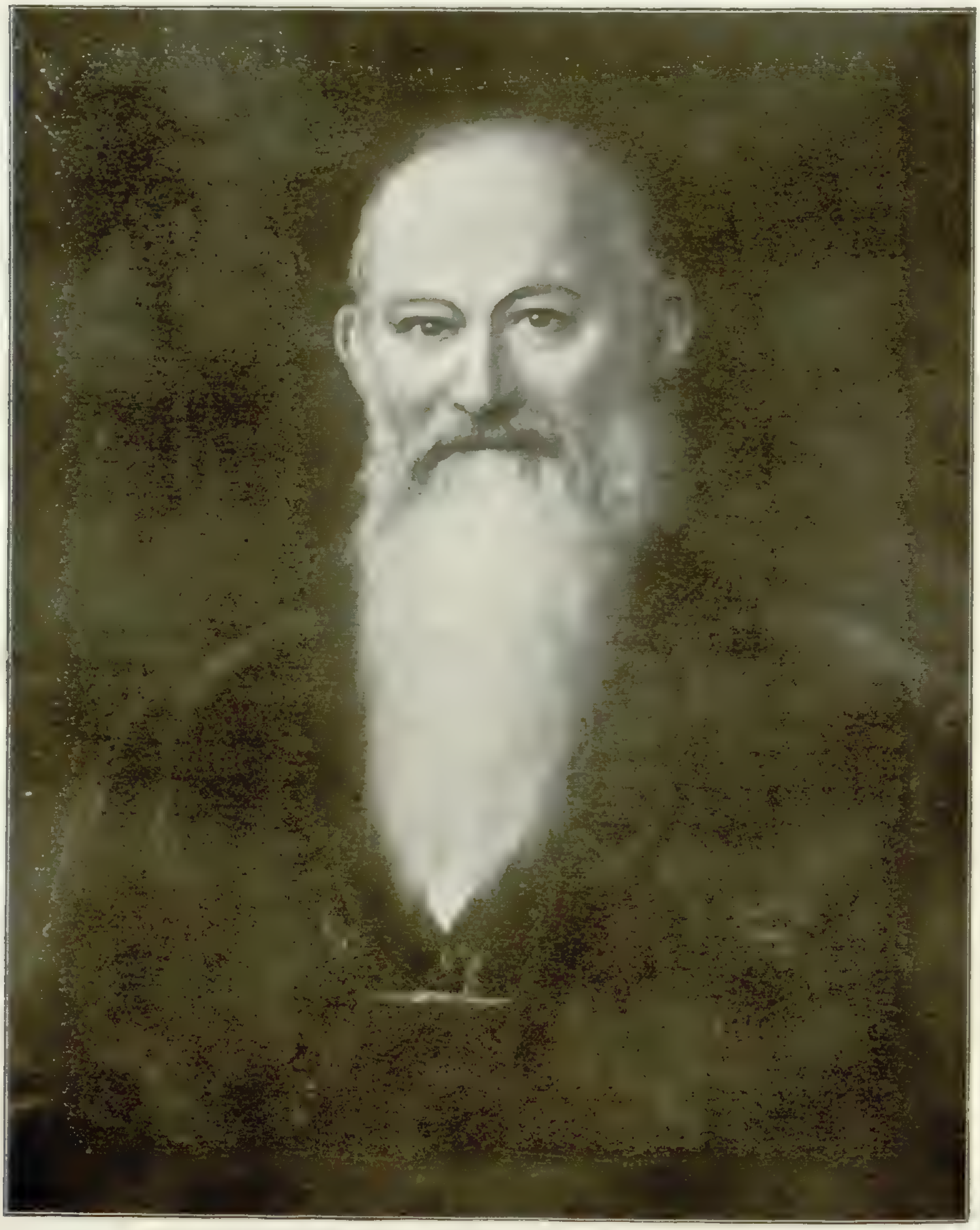

Fig. 62. SIR HARRY J. VEITCH.

the close of the eighteenth century, came from Jedburgh, Scotland, to enter the service of Sir Thomas Acland, at Killerton, Devon, and some years later commenced business there as a nurseryman. He was succeeded by his son, Mr. James Veitch, who in 1832 purchased additional land at Mount

Radford, Exeter, and thus founded the celebrated Exeter Nursery. It was to the son of Mr. James Veitch, long known as James Veitch, junr., that the development of the Orchid business was due. The latter was born at Exeter, in May, 1815, and when about eighteen years of age he was sent for two years to London for the purpose of acquiring experience, and one of these was passed in the Nursery of Messrs. Rollisson, of Tooting, a firm famous in the past for its Orchid business. It was on his return to Exeter from Tooting that young Veitch, taking with him a collection of the Orchid genus of those days, commenced the culture of those favourite plants, a taste which he always cultivated with the greatest possible zest, and which came in time to be ministered to by the introductions of his own collectors, and by his intimate personal friendship with men like Mr. G. Ure-Skinner and Colonel Benson, who had made acquaintance with Orchids in their native homes.

The Orchids purchased from Messrs. Rollisson became the nucleus of the collection for which Messrs. Veitch have for so long been renowned, but Mr. Veitch soon began to import on his own account. In 1840 he sent William Lobb, a promising young gardener who had been in his nursery, to Brazil, where on landing he proceeded to the Organ Mountains, and met with several beautiful and notable Orchids at that time extremely rare in English gardens, a consignment of which, with other South Brazilian Orchids, were transmitted to Exeter. Lobb afterwards went to Chili, Peru, and elsewhere, successfully introducing many plants which are outside our sphere, but the introduction of four notable Orchids has been attributed to him, namely Cycnoches pentadactylon, Houlletia Brocklehurstiana, Oncidium curtum, and Cypripedium caudatum, the three former from Brazil, the last from Peru.

About three years after William Lobb left for Brazil his brother, Thomas Lobb, left for Singapore, afterwards proceeding to Java, where he successfully introduced the beautiful Phalænopsis grandiflora, afterwards found to be the original P. amabilis, Blume—and now often grown under the later name of P. Rimestadiana. Afterwards he went to the Khasia Hills, Assam, and other parts of North-east India, Moulmein, Lower Burma, North Borneo, and the Philippine Islands, introducing a remarkable series of Orchids and other plants, and also collecting a large number of dried specimens, now preserved at Kew and elsewhere. Among his successful introductions we may mention Vanda cœrulea, tricolor and suavis, Dendrobium tortile, cretaceum, albosanguineum, and D. macrophyllum var. Veitchianum, Cypripedium villosum and javanicum, Cœlogyne speciosa, Schilleriana, and lentiginosa, Pleione maculata, lagenaria, and humilis, Aërides Fieldingii and A. multiflorum var Lobbii, Arachnanthe Lowii, Bulbophyllum Lobbii, Calanthe rosea, Cymbidium

giganteum, Phalænopsis amabilis, rosea, and intermedia, Saccolabium miniatum, Spathoglottis aurea, and Stauropsis gigantea. To these must be added consignments of many previously known species. Much of the territory visited by Lobb was virgin soil, and few collectors have enriched European gardens with such a multitude of beautiful Indo-Malayan Orchids.

It was in April, 1853, that Mr. James Veitch moved to London, when he acquired the old-established Exotic Nursery of Messrs. Knight & Perry, in the King's Road, Chelsea, which was then remodelled and improved. Twelve years later he took his two sons, John Gould Veitch and Harry J. Veitch, into partnership, thus establishing the business of Messrs James Veitch & Sons.

Just before leaving Exeter, experiments were commenced which have had far-reaching results. It was about the year 1853 that Mr. John Dominy, one of Mr. Veitch's foremen, acting on the advice of Mr. John Harris, a surgeon of Exeter, began to make experiments in hybridising Orchids, beginning, it is said, with the genus Cattleya. It was, however, a Calanthe that first reached the flowering stage, in October, 1856, and opened a new chapter in the annals of Orchidology. A flower was immediately taken to Dr. Lindley, who is said to have exclaimed at the sight, "Why, you will drive the botanists mad." He himself seems to have received a shock, for it was not till nearly fifteen months later that he recorded the event. Writing in January, 1858, he remarked: "On the 25th October 1856, Mr. James Veitch, junr., of the Exotic Nursery, Chelsea, brought to the writer of this memorandum a flower of a Calanthe which combined the peculiar hairy forked spur and deeply lobed lip of the white Calanthe furcata with the violet colour and broad middle lobe of the lip of C. Masuca. One might have said that the flowers were just intermediate between the two. . . . It appears that it had been raised in the Exotic Nursery by Mr. Dominy, Messrs. Veitch's indefatigable and very intelligent foreman, between C. Masuca and C. furcata. The seed was obtained in 1854 by crossing these two species, was immediately sown, and in two years the seedlings were in flower. . . . We, therefore, propose, with much pleasure, that the name of the hybrid be Calanthe Dominii, in order to put upon record the name of the first man who succeeded in the operation. He is indeed specially entitled to the distinction, not only in consequence of having produced other Orchidaceous mules, among which we understand are Cattleyas, but because of his eminent success in raising such plants from seed as a matter of horticultural business."

This marked the commencement of a new industry, and in order to show how completely it was initiated by Messrs. Veitch it may be mentioned that it was not until fifteen years later—when about sixteen distinct hybrids, belonging to various genera, had been recorded—that a

hybrid flowered in another collection. We cannot follow the development further here, but may add that the history of the question was given in detail in our first volume.

The business of importing Orchids continued, and in addition to various striking things sent to Messrs. Veitch through travellers and residents

Fig. 63. Calanthe Dominyi (the first hybrid Orchid).

abroad—prominent among them being Colonel Benson, who sent several fine things from Moulmein—they employed a number of travellers, several of whom paid special attention to Orchids, to whom we may now briefly allude.

Richard Pearce was sent to Chili, Peru, and Bolivia, where he collected very successfully between 1859 and 1866, and although his work was not much among Orchids the introduction of Cypripedium caricinum and Epidendrum syringothyrsus are attributed to him.

John Gould Veitch went to Japan in 1860, proceeding thence to the Philippine Islands, whence he sent a number of Phalænopsis, then rare in British gardens, and finally visiting the South Sea Islands. His introductions include Dendrobium Johannis, Gouldii, and canaliculatum, Cypripedium philippinense, and Cymbidium canaliculatum.

Henry Hutton was sent on a collecting mission to the East in 1866, and spent some time in Java, thence proceeding to other parts of the Malay Archipelago. His introductions include the remarkable Cymbidium Huttonii, Saccolabium Huttonii, Dendrobium superbum var. Huttonii, and the rare Vanda insignis.

Carl Kramer was sent to Japan in 1867, and afterwards went to Costa Rica and Guatemala for Orchids, but the introduction of Odontoglossum Krameri, named after him, seems to have been almost his only success.

Gottlieb Zahn went to Central America in 1869, sending home several consignments of Orchids from the neighbourhood of Chiriqui, from which Epidendrum physodes and Masdevallia lata were described. He was proceeding to Costa Rica when he perished by drowning.

J. H. Chesterton was a very successful collector for the firm between 1870 and 1878. Originally a valet for a gentleman who travelled much in foreign lands, Chesterton wished to bring home some of the floral treasures which he met with, and applied to Messrs. Veitch as to the best means of packing them. Information was readily afforded, and opportunities given of seeing plants packed for long journeys, as well as those recently imported. Nothing more was heard of Chesterton for some time, but on returning from a visit to South America he came to Chelsea with a collection of Orchids so carefully packed and cared for that they arrived in the best possible condition. Messrs. Veitch accepted the offer of purchase, and subsequently Chesterton entered the service of the firm as traveller, the special object being the introduction of the much talked-of scarlet Odontogiossum (O. vexillarium), whose existence had been made known by Bowman, an earlier traveller of the firm, and afterwards by Wallis and Roezl, who had made unsuccessful attempts at its introduction. Chesterton started with but the scantiest information, but he succeeded in discovering the plant, and safely introduced it to Chelsea, where it flowered for the first time in 1873. Chesterton also sent home the fine Masdevallia coccinea Harryana, M. simula, some fine forms and hybrids of Odontoglossum crispum, and other Orchids.

George Downton was sent to Central America in 1871 for Orchids, and

forwarded consignments to Chelsea, after which he joined Endres in Costa Rica, in search of the long-desired Odontoglossum Warscewiczii (afterwards called Miltonia Endresii), which was successful, for he brought a few living plants to England with various other Orchids, though the majority perished *en route*.

A. R. Endres was a half-caste who had been employed, through Mr. G. Ure-Skinner, to collect Orchids in Guatemala for Mr. James Bateman. The latter afterwards recommended him to Messrs. Veitch, for whom he collected in Costa Rica from 1871 to 1873, part of the time in company with Downton. His introductions include Miltonia Endresii, Cryptophoranthus gracilentus, Polycinis gratiosa, Epidendrum Endresii, Masdevallia Reichenbachiana and triaristella, and Cattleya Skinneri alba. He also sent home a batch of the beautiful yellow C. Dowiana, then extremely rare.

Gustave Wallis, formerly a collector for Mr. J. Linden of Brussels, entered Messrs. Veitch's service in 1870, and was sent to the Philippines, principally to collect Phalænopsis, and during the expedition discovered the two striking Cypripediums, Argus and Haynaldianum, also Dendrobium amethystoglossum. Two years later he went to New Grenada, where he discovered the very distinct Epidendrum Wallisii, Masdevallia peristeria and gargantua, Odontoglossum prænitens, Oncidium anthocrene, Pescatorea Dayana and lamellosa, Cypripedium caudatum Wallisii, and various other interesting things.

Walter Davis was sent to South America with the special object of securing a quantity of the brilliant Masdevallia Veitchiana, then extremely scarce, in which he was successful, besides discovering other striking Orchids; M. Davisii, Barlæana, and ionocharis, Cypripedium Boissierianum, Lycaste Locusta, and others. It is said that during his four years' stay in South America Davis crossed the Cordillera of the Andes no fewer than twenty times, at elevations of 14000 to 17000 feet, and traversed that vast Continent from one side to the other, along the whole length of the Amazon valley.

Mr. Peter C. M. Veitch made a long sea voyage in the interests of the firm, leaving in 1875 for Australia, whence he proceeded to the Fiji and South Sea Islands, New Zealand, and New Guinea, finally joining F. W. Burbidge in a collecting expedition to Borneo, and returning to Chelsea in 1878. Although twice he had the misfortune to lose his collections by shipwreck, he sent a number of interesting things home, among the Orchids attributed to him being Dendrobium arachnostachyum, Petri, and tipuliferum, and Spathoglottis Petri.

Guillerme Kalbreyer made a short trip to West Africa in 1876, during which he discovered Pachystoma Thomsonianus and Brachycorythis

Kalbreyeri, the former—now known as Ancistrochilus—being sent home alive. He then made several journeys to Colombia, sending home fine consignments of Odontoglossums, Masdevallias, Miltonia vexillaria, and many other Orchids. His engagement terminated in 1881.

F. W. Burbidge collected in Borneo and the Sulu Archipelago in 1877 and 1878, during which time he made the ascent of Mt. Kina Balu. His discoveries include Phalænopsis Mariæ, Cypripedium Lawrenceanum, Dendrobium Burbidgei, Bulbophyllum mandibulare and B. Leysenianum. The impressions of his journey are recorded in an interesting volume, entitled *The Gardens of the Sun*.

Charles H. Curtis collected for the firm from 1878 to 1884, his first trip being to Mauritius and Madagascar, during which he discovered Angræcum hyaloides in the latter island. After that he explored Borneo, Sumatra, Java, and the Moluccas. His discoveries include Cypripedium Curtisii and tonsum, Cœlogyne Dayana, Dendrobium Antelope and leucolophotum, Eria Curtisii, Phalænopsis maculata, Calanthe Curtisii, and other interesting things.

David Burke collected for the firm from 1881 to 1897, and is said to have covered a greater portion of the earth's service in search of plants than any other Veitchian collector, with the possible exception of the two brothers Lobb. He first went to Borneo with Curtis, then to British Guiana—where he discovered Zygopetalum Burkei and introduced Cypripedium Lindleyanum—twice to the Philippines for Phalænopsis, twice to New Guinea, once to Burma, three times to Colombia, and lastly to the Moluccas, where he died in 1897. His introductions include Cœlogyne Veitchii, Cirrhopetalum robustum, and Phaius philippinensis.

From these collectors importations of various well-known Orchids were constantly being received, also numerous other plants which are outside our scope. For the same reason we have omitted several collectors whose work scarcely touched Orchids, and among them the last very successful traveller, Mr. E. H. Wilson, who, however, introduced Cypripedium tibeticum and the pretty little Dendrobium bellatulum among his extensive introductions from China.

The important work of hybridising Orchids initiated by Messrs Veitch, which has so completely altered the character of our collections, has already been mentioned, and after the retirement of Mr. Dominy, in 1880, the work was greatly extended by Mr. John Seden during the next fifteen years. Seden raised an enormous number of hybrids, commencing with Cypripedium Sedenii in 1873, the most important genera including Cypripedium, Læliocattleya, Cattleya, Dendrobium, Lælia, Epidendrum, Phalænopsis, Masdevallia, Calanthe, Disa, Zygopetalum, Chysis, Sophrocattleya, Phaiocalanthe, and various miscellaneous subjects. In 1889 the

seedling Orchids were removed to Langley, near Slough, and six years later Seden retired, being succeeded by Mr. T. A. Briscoe, who had for some time been in charge of the Kew collection, and who has since carried on the work with much success. Some handsome hybrids have already flowered, but a large number of choice crosses have not yet reached the flowering stage.

Another important service rendered to Orchidology by Messrs. Veitch was the production of their *Manual of Orchidaceous Plants*, which was issued in ten parts between 1894 and 1897, and which still remains the standard work on Garden Orchids. It forms two volumes of large octavo size. Lastly, we may mention the *Hortus Veitchii*, by James H. Veitch, a handsome quarto volume, which appeared in 1906, in which the history and work of the firm in its various departments is recorded, and to which we acknowledge our indebtedness for some of the facts mentioned in this article. We regret the loss of an old historic firm, but have the satisfaction of knowing that the Orchid Department at Langley has fallen into worthy hands. We look with confidence to Messrs. Flory and Black to uphold the traditions of the Veitchian firm in the future. And we hope that Sir Harry and Lady Veitch may long be spared to enjoy their well-earned retirement.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

THIS month is rather a trying one for the successful cultivation of Orchids, as, owing to the vagaries of the weather, it is often a matter of extreme difficulty to maintain even temperatures and avoid fluctuations, which are so bad for these plants. But by care and intelligent stoking much can be accomplished, and an average day temperature of 53° to 60° Fahr., with a drop to 50° at night, should be maintained as far as possible. Continue to admit air on all favourable occasions, and if the sun shines brightly at noon and there is sufficient heat in the pipes, the top and bottom ventilators can usually be opened, but generally air can only be given through the latter.

From now to the beginning of March much caution is needed in the watering of the plants. An overdose will often result in the loss of an Orchid, especially if the weather is dull and evaporation slow. Therefore, on looking over the plants, it will be found a good plan to leave until the following day any plant which does not actually require water, for much less harm is done by a day's drying than by causing the plant's roots to be growing in a sodden mass of compost.

The winter-flowering Cypripediums, such as aureum, Actæus, Boxallii, Calypso, Elsie, Hera, Hitchinsiæ, insigne and its many varieties, Leeanum, nitens, Rossetti, Sallieri, triumphans, and villosum will now be throwing up their flowers, and the plants should be carefully looked over, all dead

leaves removed, flowers neatly staked, and leaves sponged. If thus gone over carefully, their beautiful and long-lasting blossoms are set off to great advantage. Besides the varieties mentioned there are countless secondary hybrids, all of which are worthy and suitable for cultivation in an amateur's house, and I think the best plan is to visit a nursery and select individual plants in bloom.

The beautiful Oncidium tigrinum, which, to my mind, is one of the handsomest of any Orchid yet in cultivation, will now be throwing up its flower spikes, and must be placed in the warmest and lightest part of the house, as otherwise the buds are apt to turn yellow and drop off. If not very strong it will be found best to remove the spike as soon as all the flowers are open, as otherwise too great a strain will be imposed upon weakly plants, and much care would be required to grow them again into strong, healthy specimens. The flowers, however, will keep as long in a cut state as if left on the plant, providing the stem be cut *under water* every day, and a little salt added to the water, which should be changed daily. The above remarks apply to all the species of winter and spring-flowering Oncidiums.

Where there is the necessary time it will be found a good plan to periodically go through the whole collection, sponging the leaves, removing any useless pseudobulbs, and in keeping a sharp look-out for all signs of insect life. Slugs are unusually troublesome at this season, and therefore must be carefully watched for. Bran or fresh lettuce leaves laid at intervals on the staging form attractive baits, and many can be caught if a search is made with a lantern about eight o'clock in the evening.

It is now too late in the year to re-pot any plant, as the winter is near at hand, and no Orchid ever re-establishes itself satisfactorily at that season. Potting should only be done when the roots are active and thus able to avail themselves of the new compost at once.

SUGGESTED ADDITION.

CYPRIPEDIUM LEEANUM.—This hybrid is most suitable for an Amateur's Cool house, being free-flowering, of easy culture, and low in price. The blooms are produced in the winter months, and will keep fresh from eight to ten weeks if kept cool and dry. Several fine varieties exist, but in the typical form the dorsal sepal is white, with violet dots and a green base, the sepals and pouch being yellow, much over-laid by brownish red. No other hybrid has probably been so much employed by the hybridist, and the secondary hybrids of C. Leeanum are extremely handsome and comprise such useful winter-flowering varieties as Actæus, Leander, Lasellei, and Tracyanum. In fact over forty distinct hybrids from C. Leeanum are recorded in the *Orchid Stud-Book*, and others have appeared since, so that there is ample material to select from.

CYPRIPEDIUM BOLTONII WITH A THREE-FLOWERED SCAPE.

THE annexed figure represents the plant of Cypripedium Boltonii bearing a three-flowered scape, from the collection of W. P. Burkinshaw, Esq., The West Hill, Hessle, which gained a First-class Diploma at the meeting of

Fig. 64. CYPRIPEDIUM BOLTONII WITH THREE-FLOWERED SCAPE.

the North of England Horticultural Society, held at Leeds on October 9th and 10th last. It is reproduced from a photograph kindly sent by Mr. J. T. Barker, who remarks that he has never seen a Cypripedium of this section with a three-flowered scape before. It is doubtless the result of good culture.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 7th, when there was a larger display of Orchids than has been seen for the last two months, and Cattleyas and Lælio-cattleyas were particularly well represented. The awards consisted of five medals, one First-class Certificate, and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, R. B. White, S. W. Flory, W. H. White, A. Dye, J. E. Shill, W. H. Hatcher, J. Charlesworth, W. Cobb, C. H. Curtis, A. McBean, T. Armstrong, R. G. Thwaites, Stuart Low, F. J. Hanbury, F. Sander, R. A. Rolfe, and Sir Harry J. Veitch.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), sent Cattleya Dietrichiana Southfield var., a richly-coloured form, and a beautiful example of C. Hardyana alba, with a spike of four flowers, having white sepals and petals, and a rich crimson lip with yellow throat and veining.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed a beautiful example of Odontoglossum Smithii, a good blotched O. crispum, and others.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the beautiful albino Lælia pumila alba, and the handsome Cattleya Rhoda illuminata, Sophrolælia Gratrixiæ, with a good example of Odontoglossum Ceres.

Sir John Edwards Moss, Bart., Roby Hall, Torquay, sent a flower of a hybrid Cymbidium, obtained from C. giganteum × erythrostylum, and showing clearly its origin. The ground colour was green, lined with red-brown on the sepals, petals and lip, with the column red, as in the pollen parent. It has been named Cymbidium Florinda.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Lælio-cattleya Maqueda (L.-c. George Woodhams × C. Rothschildiana), a large and handsome hybrid, with rose-purple sepals and petals and a deep ruby-crimson lip, and Odontonia brugensis var. Distinction, bearing a raceme of eight flowers, having pale lilac segments with a violet base, and some yellow on the disc of the lip.

R. G. Thwaites, Esq., Chessington, Streatham Hill, sent a pretty little group, including good forms of Cattleya Fabia, Iris, Adula, Cleopatra, Dowiana aurea, and others.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, including a beautiful series of Oncidium incurvum and Epidendrum vitellinum autumnale at the back, some finely-grown and well-flowered

specimens of Cypripedium Charlesworthii, C. glaucophyllum × Fairrieanum, C. Rolfei, leyburnense, Niobe, and other good hybrids, the fine yellow Phaius Ashworthianus, Pescatorea Roezlii, Angræcum Buyssonii, Warrea bidentata, Warscewiczella discolor, Dendrobium Dearei, Miltonia Bleuana nobilior, Phaius Norman, good examples of Oncidioda cinnabarina and Charlesworthii, Lycaste hybrida, Cattleya Mantinii, Læliocattleya Colmanii, Neleus, Dominiana, St.-Gothard, Pelias, and others, Odontioda Brewii (O. Charlesworthii × Odontoglossum Harryanum), the new O. Brunette (O. Bohnhofiæ × Odontoglossum Harryanum), almost black-purple in colour, Brassocatlælia Cooksonii (B.-l. Gratrixiæ × Cattleya Dowiana aurea), a very pretty red and yellow hybrid, Sophrocatlælia Sibyl, Brassocattleya Maroniæ and Marie, &c., with a beautiful series of Odontoglossums (Silver-gilt Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including some good examples of Cattleya Fabia, Iris, Armstrongiæ, Adula, fulvescens, Rothschildiana, and Dowiana aurea, Læliocattleya Sandhurstiana (L.-c. Norba × C. Dowiana aurea), the handsome L.-c. Mrs. Donald MacMaster Orchidhurst var. (L.-c. luminosa × C. Dowiana aurea), L.-c. Thyone, George Woodhams, Greenwoodii, and Norba, Cœlogyne pandurata, Phalænopsis amabilis, Brassocattleya Maroniæ, and a good example of the remarkable Bulbophyllum Ericssonii (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a handsome group, including a fine series of Cattleya Fabia, C. Iris, C. Rothschildiana, C. Mrs. J. W. Whiteley, C. Mrs. Pitt var. Golden Dawn, with blush white flowers and much yellow on the very undulate lip, Saccolabium acutifolium and dasypogon, Oncidium bicallosum aureum, Cœlogyne assamica, Catasetum macrocarpum, Odontioda Charlesworthii and Bradshawiæ, Cypripedium triumphans, C. Niobe-Leeanum, C. Richmanii, some good Odontoglossums, Læliocattleya Phœnix, and many other good things (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a very pretty group, including some good Odontoglossum grande, Cattleya Dowiana aurea, C. Harrisoniana alba, C. Iris, Nestor, Hassallii, iridescens, labiata, and Mantinii, Læliocattleya Hera (L.-c. Issy × C. Hardyana), Cirrhopetalum appendiculatum, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Bush Hill Park, staged a very effective group, including a good series of Oncidium varicosum, Dendrobium Phalænopsis and superbiens, Vanda cœrulea, Odontoglossum grande, Cattleya Thurgoodiana, Hardyana, and Iris, Brassocattleya Maroniæ and B.-c. Pocahontas alba, the pretty lavender-tinted Lælia Dayana delicata, and others (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a small group of good things, including Brassocatlælia Morna superba, B.-c.-l. Eric

(B.-c. Maroniæ × L.-c. Violetta), a very large and promising hybrid, of a rosy lilac shade, Brassocattleya Ilene (B.-c. Maroniæ × C. Dowiana aurea), rosy pink with a fine yellow disc, Cattleya Atalanta, C. Mendelii × Percivaliana, and others.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent Cattleya Iris Prince Arthur, a very distinct form, with bronzy red sepals and petals and a deep rose-purple lip.

Messrs. J. & A. McBean, Cooksbridge, sent a small choice group, including Cattleya Rothschildiana albescens McBean's var., a charming blush white form with a yellow disc to the lip, Odontioda Minerva (Odontoglossum Edwardii × Odontioda Bohnhofiæ), with a branching spike of deep red flowers, O. Euterpe, Diana, and Lambeauiana, Vanda Sanderiana, Odontoglossum amabile, and others.

FIRST-CLASS CERTIFICATE.

CATTLEYA ADULA GLEBE VAR. (bicolor × Hardyana).—A very fine variety, with broad, rich bronzy yellow sepals and petals, and an ample deep crimson lip. Exhibited by C. J. Phillips, Esq., The Glebe, Sevenoaks.

AWARDS OF MERIT.

BRASSOCATTLEYA IRIS (C. Iris × B.-c. Thorntonii).—A charming hybrid, having bright rose flowers, becoming paler at the base of the segments, and the disc of the lip light yellow. Exhibited by Messrs. J. & A. McBean.

CATTLEYA FABIA PRINCE OF WALES (labiata × Dowiana aurea).—A very large and handsome form, having bright magenta-rose sepals and petals, with the front lobe of the lip crimson. Exhibited by Messrs. Sander & Sons.

ODONTOGLOSSUM CRAWSHAYANUM SUPERBUM (Hallii × Harryanum).—A beautiful form, bearing a spike of ten fine flowers, with the sepals and petals green, heavily blotched with brown, and the lip white, with some purple spotting round the yellow crest. Exhibited by Pantia Ralli, Esq.

At the meeting held on October 21st there was a fine display of Orchids, and the awards consisted of seven medals, six Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, S. W. Flory, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, W. P. Bound, G. Hunter, W. H. Hatcher, J. Cypher, J. Charlesworth, W. Cobb, C. H. Curtis, A. McBean, T. Armstrong, F. J. Hanbury, F. M. Ogilvie, J. Wilson Potter, R. G. Thwaites, R. A. Rolfe, C. J. Lucas, Sir Jeremiah Colman, Bart., and Sir Harry J. Veitch.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr.

Alexander), received a Silver Banksian Medal for a small group of choice things, in finely-grown examples, including Cattleya Fabia Holford's var., bearing a spike of five remarkably large and richly-coloured flowers, a beautiful example of C. Rothschildiana, Læliocattleya Neleus (C. Iris × L.-c. Ophir), a delicately tinted flower, L.-c. luminosa Canary Bird, Brassocattleya Leemanniæ, Cypripedium Actæus Bianca, Boltonii, Muriel, and others.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), received a Silver Banksian Medal for a group of choice Cypripediums, including C. Rossetti, Boltonii, Thalia Mr. F. Wellesley, Dreadnought, Pallas Athene, and others, with a fine example of Læliocattleya St.-Gothard in the centre.

Mrs. Bischoffsheim, The Warren House, Stanmore (gr. Mr. Jones), sent Cattleya labiata Warren House var., bearing a spike of four large rose-coloured flowers with a darker lip.

William Bolton, Esq., Warrington. showed Cattleya Surprise (Trianæ × granulosa), a promising hybrid with a strongly three-lobed lip.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a small group, including Sophrocattleya Rappartiana and eximia, Sophrocatlælia Niobe, Sophrolælia Irene, Cattleya Maggie Raphael Goodson's var., &c.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed Cattleya formosa albescens (Trianæ alba × Hardyana alba), a pretty light-coloured form.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), sent Cypripedium Norah (Fairrieanum × Standard), a pretty hybrid bearing three flowers, having a light-coloured dorsal sepal veined with purple.

C. J. Phillips, Esq., The Glebe, Sevenoaks, sent Læliocattleya Astoriæ Glebe var., a good white form, with the lip rosy crimson in front of the yellow disc.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent two good plants of the beautiful yellow Odontoglossum grande Pittianum, the best bearing two racemes, also Cattleya Thela (Mrs. W. J. Whiteley × Hardyana), and Læliocattleya Amecia (L.-c. Wellsiana × C. Mantinii).

R. G. Thwaites, Esq., Chessington, Streatham, sent Odontoglossum Meredithiæ (Rossii rubescens × venustulum), a very pretty rose-tinted hybrid, with dark spots, and a ruby red blotch in front of the lip's crest, also good examples of Odontioda Bradshawiæ, Leeana, Cupid, and others.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya labiata Empress, a pretty white form with a pink tinge in front of the lip, and Læliocattleya Captain Starkie Westfield var. (L.-c. Aphrodite × C. labiata), having a broad rosy lip with darker lines.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including several good forms of Læliocattleya Thyone, L.-c. Cappei × C. Dowiana aurea, Cattleya Acis (Mantinii × Dowiana aurea), C. Armstrongiæ × Dowiana aurea, with bronzy yellow flowers, Cattleya Fabia, Mantinii, and Armstrongiæ, C. Freya Mrs. Frederick Sassoon, a very fine purple flower with yellow veining on the lip, C. Dusseldorfii, Odontioda Cupid, a pretty purple hybrid between Odontoglossum Edwardii and illustrissimum, Cypripedium Baron Schröder, Gaston Bultel, and others, Bulbophyllum grandiflorum, Cirrhopetalum Fascinator, &c. (Silver Flora Medal).

Messrs. Cypher & Sons, Cheltenham, staged an attractive group, including fine examples of Cattleya labiata, Fabia, Mantinii, and a very dark C. Bowringiana, some good forms of Dendrobium Phalænopsis, Phaius Ashworthianus, Masdevallia angulata and calura, Miltonia candida, and several good Cypripediums (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a pretty group of Cattleyas, including C. labiata, Fabia, Hardyana, Dowiana aurea, Hassallii, Minucia, Rothschildiana, St.-Gilles, and C. Moira (Fabia × Mantinii), a pretty hybrid most like the former (Silver Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a small choice group, including Læliocattleya Saturn (L.-c. Clive × C. Dowiana Rosita), a pretty lilac-purple flower with dark maroon-purple lip, Cattleya suavior, C. Fabia and var. alba, Odontoglossum Dora, Trichopilia fragrans, Listrostachys Chailluana, Oncidium Forbesii, and a plant of Polycycnis muscifera with a very fine spike.

Messrs. Flory & Black, Langley, Slough, sent Cattleya labiata, C. Rothschildiana, and Cypripedium Idina.

Messrs. Stuart Low & Co., Enfield, staged a pretty group, including some good Oncidium varicosum, Dendrobium Phalænopsis and var. alba, Vanda cœrulea, Cattleya Gaskelliana alba, Fabia, labiata, Mantinii, Læliocattleya luminosa, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including many fine Cattleyas, Pleione lagenaria, Sarcopodium Cœlogyne, Sievkingia peruviana, Cœlogyne fuliginosa, Odontioda Devosiana, Catasetum macrocarpum, and others (Silver Banksian Medal).

AWARDS OF MERIT.

CATTLEYA EMPRESS FREDERICK VAR. AVIA CLIFTON (Mossiæ var. Dowiana aurea).—A beautiful form, having large flowers, with white sepals and petals, and a broad yellow lip striped with red. Exhibited by Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes).

CATTLEYA GRANIRIS (granulosa × Iris).—A showy hybrid of good shape, having bronzy-orange sepals and petals, and a carmine-red lip. Exhibited by C. J. Philips, Esq., Sevenoaks.

Cypripedium Queen Alexandra (Lathamianum × Charlesworthii).—A fine hybrid, having a white dorsal sepal with dark purple base, the lip and petals tinged with purple on a greenish yellow ground, and the staminode white with a green centre. Exhibited by W. R. Lee, Esq.

Odontoglossum Vivien (parentage unrecorded).—A beautiful hybrid of the eximium type, having very round white flowers, and the broad segments having a few red-purple blotches about the centre. Exhibited by Lt.-Col. Sir George L. Holford.

Oncidium varicosum Westonbirt var.—A very large and handsome form, with a remarkably broad lip. The plant bore two fine panicles of bloom. Exhibited by Lt.-Col. Sir George L. Holford.

Sophrocatlælia Laconia (L.-c. callistoglossa × S.-l. heatonensis).—A large and showy hybrid, having purple-rose flowers, with darker markings on the lip. Exhibited by Messrs. Charlesworth & Co.

Cultural Commendation.

Cypripedium picturatum.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., Burford, for a very fine specimen, bearing about twenty-five scapes, and many of them twin-flowered.

Manchester & North of England Orchid.

At the meeting held at the Coal Exchange, Manchester, on September 25th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, D. McLeod, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Messrs. James Cypher & Sons, Cheltenham, and Messrs. J. Charlesworth & Co., Haywards Heath, for fine varied groups, in which Cattleyas, Læliocattleyas and Odontoglossums were particularly well represented.

A Silver Medal was awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a good group of Cypripediums in variety. Silver Medals were also awarded to Messrs. Sander & Sons, St. Albans, and Messrs. Hassall & Co., Southgate, for small choice groups.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a fine exhibit, including twenty plants of Cypripedium Maudiæ and thirteen of Epidendrum vitellinum autumnale, a Cultural Certificate and Bronze Medal being awarded to the gardener for the excellent cultivation of the latter.

First-class Certificates.

Cattleya Rhoda var. Queen Alexandra, one of the best of the type. From R. Ashworth, Esq.

Cœlogyne Mooreana, a pretty white flower, with yellow throat. From Messrs. Sander & Sons.

AWARDS OF MERIT.

Sophrocattleya Blackii, Odontoglossum crispum xanthotes Ashlands var., O. eximium xanthotes Ashlands var., and O. crispum Tetrarch. From R. Ashworth, Esq.

With the report summarised above the Secretary encloses a list of Cypripediums that have been deleted from the list, as not being worthy of Confirmed Awards for points to count in the Competitions. The list contains 168 names.

At the meeting held on October 16th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, H. Hanmer, D. McLeod, C. Parker, W. Shackleton, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine miscellaneous group, in which Cattleyas and Cypripediums were particularly well represented.

Large Silver Medals were awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), and Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for fine groups of Cattleyas, Cypripediums, and Odontoglossums, in well-grown examples.

Silver Medals were awarded to W. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a small group of Cypripediums in variety; and to Messrs. Cypher & Sons, Cheltenham; Messrs. Sander & Sons, St. Albans, and Messrs. A. J. Keeling & Sons, Bradford, for good mixed groups.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), whose exhibit included a dozen good plants of Cypripedium Fairrieanum and other good things; Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall); Mr. W. Shackleton, Great Horton, Bradford, and Messrs. Charlesworth & Co., Haywards Heath.

FIRST-CLASS CERTIFICATE.

Læliocattleya excelsis (L.-c. Haroldiana × C. Hardyana), of good form and colour, with a deep maroon lip; and Cattleya Purity (labiata Harefield Hall × Warneri alba), a large flower, with white segments. From R. Ashworth, Esq.

Cypripedium Troilus var. Impregnable (insigne Harefield Hall × nitens), a large well-set flower. From Wm. Thompson, Esq.

AWARDS OF MERIT.

Læliocattleya Colmaniæ (L.-c. callistoglossa × C. Hardyana), and the

fine Odontoglossum grande superbum, from R. Ashworth, Esq., the latter having been in Mr. Ashworth's collection for sixteen years.

Cypripedium Arthurianum Walton Grange var. From Wm. Thompson, Esq., Walton Grange, Stone.

NORTH OF ENGLAND HORTICULTURAL.

At a show of the above Society held in the Corn Exchange, Leeds, on October 9th and 10th, there was an interesting display of Orchids. The largest exhibit was from Messrs. Mansell and Hatcher, Rawdon, their group including a series of seasonable Cattleyas, Læliocattleyas, Miltonias, Odontoglossums, Odontiodas, and Cypripediums, besides a number of botanical curiosities. They received an award of a Silver-gilt Medal for their group, and a Second-class Diploma for Lælia pumila alba.

W. P. Burkinshaw, Esq., The West Hill, Hessle (gr. Mr. J. T. Barker), also put up a group of fifteen plants, all of which were of merit. They included Cattleya Rhoda conspicua, which was awarded a First-class Diploma, Cypripidium Boltonii magnificum, with three fine flowers on one spike, which gained a First-class Diploma (see page 345), Cypripedium Lord Ossulston with twelve flowers of fine size, this receiving a Cultural Commendation. Cattleya Queen Mary, a pure white Cattleya, received a Second-class Diploma. The other plants comprised such things as Cypripedium Our Queen, C. Germaine Opoix, C. Maudiæ magnificum, Cattleya iridescens, a fine yellow variety, Læliocattleya callistoglossa excelsa, L.-c. Walter Gott, and other good things. A large Silver Medal was awarded to the exhibit.

J. Hartley, Esq., Morley, exhibited a nice group of Orchids, which included good plants of Odontoglossum grande, O. Lambeauianum, Cattleya Fabia, and a fine Cattleya Hardyana, which received a First-class Diploma.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, also had a small exhibit of interesting Orchids, which was awarded a Bronze Medal.

CYPRIPEDIUM BELLATULUM AND ITS HYBRIDS.

ALTHOUGH remarkable strides have been made in the cultivation, and more especially in the hybridization, of this genus, it must be confessed that similar success has not been achieved in the culture of Cypripedium bellatulum. In very few establishments are plants to be found in flourishing condition, and one repeatedly hears that they lack good constitution and are of difficult culture. Where, however, the facilities exist for giving them genial surroundings, and the plants are entrusted to an intelligent cultivator, who studies their wants, the results will be in every way satisfactory for well-bloomed plants of C. bellatulum are very beautiful,

and of good shape and well-defined colouring. The following is a brief outline of the method of culture :—

Cypripedium bellatulum requires to be given a light position near the roof glass at the warmest end of the Cattleya house, and if the corner selected be one where moisture does not condense quickly so much the better, as drip is fatal to the plants. A warm moist atmosphere is needed throughout the year, and damping the staging and between the pots should be practised at frequent intervals, care being taken not to wet the foliage. This Orchid must never be subjected to a lower temperature than 55° Fahr. in winter, and will only need shade from direct sun. The most important point in regard to the culture of C. bellatulum is watering. Providing its immediate surroundings are kept moist, little water need be applied direct. When at rest, and during the winter months, a dose should be given only when the compost is inclined to dryness, but as the warmer weather approaches more may be given. Care must be taken when watering not to allow any water to touch the leaves, hence any overhead syringing must never be practised. I find that the best way to water this Orchid is to immerse the pot up to the rim in a pail of tepid rain water. Repotting should only be performed when the soil becomes exhausted, and this operation is best carried out about a fortnight after flowering. Use plenty of clean broken crocks, and for compost a mixture of good yellow loam, limestone, and brick rubble.

Many fine hybrids have been raised from this species, as many as thirty-nine being enumerated in the *Orchid Stud-book*, fourteen of which are secondary hybrids, and a good many additions have been made since. A selection of them is appended :—

C. Chapmanii (bellatulum × Curtisii).
C. Cycnides (bellatulum × Swanianum).
C. Dora (bellatulum × Charlesworthii).
C. Gratrixiæ (bellatulum × vexillarium).
C. Helena (bellatulum × insigne).
C. Hopkinsii (bellatulum × Mastersianum).
C. Hunteri (bellatulum × tonsum).
C. Lawrebel (bellatulum × Lawrenceanum).
C. Olenus (bellatulum × ciliolare).
C. Richmanii (bellatulum × barbatum).
C. Rolfei (bellatulum × Rothschildianum).
C. southgatense (bellatulum × Harrisianum).
C. Wottonii (bellatulum × callosum).

If care be taken with these hybrids much pleasure can be derived from them, as healthy plants are very floriferous, and are among the most charming of the genus.

C. ALWYN HARRISON.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

SINCE writing my last the weather has taken a great change, and from clear, bright skies we have had a quantity of rain, with its accompanying clouds, and already we are experiencing quite dark and dismal weather. This is not to the benefit of the plants, and every effort should be made to admit as much light as possible to the houses. Where the roofs of the houses are hung with plants to a considerable extent some re-arrangement will be necessary, so that those suspended from the roof do not impede the light reaching those placed upon the stages.

TEMPERATURES.—The figures given last month for all the departments should be continued, so there is no reason to repeat them. If any difference is made it should be a slight reduction towards the minimum, or winter temperatures, as given in the January number. It is not wise to drop the temperatures all at once, or at any given time; a little discretion is needed, and should we experience a spell of mild, humid weather it will be advisable to maintain the temperatures, and admit more air. Fresh air, if properly admitted, never does harm; it is draughts which do the mischief.

ATMOSPHERIC MOISTURE.—With the gradual reduction of temperatures, a corresponding gradual reduction of the amount of moisture in the atmosphere is necessary. No definite rule can be laid down, as the different houses vary considerably as regards their humidity.

VENTILATION.—The admission of air will, during the present month, need a great deal of attention, but, whenever practicable, fresh air must be admitted. This fact by present-day cultivators is much more practised than formerly, and as time goes on is likely to become universal. Orchids are not coddled to the extent they were formerly.

WATERING is a matter which must be done carefully at this season. Those plants which are in growth will require comparatively little, and should be allowed to become dry before having it applied to them, whilst those at rest will only require sufficient to keep them plump and healthy. If at any time there should be a doubt as to a plant being sufficiently dry to require water, let it remain until you are quite certain. Many Orchids are overwatered during the winter months, and receive an insufficient supply during the summer when in full growth.

STOKING.—During the present month this essential detail will require considerable attention, as upon the amount of care bestowed depends the healthy or unhealthy surroundings of the plants. Too much fire heat is as detrimental to plant life as too little. Stuffiness in the houses must always be avoided, a nice buoyant atmosphere, without too much fire heat, is the ideal condition.

CATTLEYAS.—In this dull month there will be plenty to interest the lover of this beautiful genus. C. labiata and its many varieties will be in bloom, and at this season are much appreciated. There will also be a few C. Dowiana and its variety aurea to add their charms to the picture. Then, again, there are innumerable hybrids which flower at this season of the year, making the Cattleya house of intense interest. How often do we as modern Orchid growers realize the difficulties our predecessors had to contend with in maintaining a succession of these lovely flowers the whole year round? To-day it is quite an easy matter. C. Lawrenceana should be afforded the lightest position available, near the roof glass at the warmest end of the house. Plants of C. Trianæ, and others which have completed their growths, should be kept only just moist at the roots, but as soon as the flower-spikes are observed to be pushing up at the base of the sheaths they may receive more liberal supplies. C. Gaskelliana and others which require repotting may be attended to as soon as roots are observed pushing from the base of the current season's growth, keeping them on the dry side until the new roots are seen to be nicely at work in the new compost. Excessive watering to new compost is most harmful, not only causing its decomposition but also injuring the plant. Many Cattleyas at this season make secondary growths, but I have not found any ill effects from this, provided the plants are kept in a light position and kept active until this growth is completed. It is often the means of the plant making extra leads, and usually occurs with strong robust specimens. Some varieties are more susceptible to this than others. When once growth has started nothing is gained by checking it; the best practice is to encourage it to develop as speedily as possible by placing the plant in a good position and giving water whenever it is required.

CYPRIPEDIUMS.—Those heat-loving Cypripediums, such as C. Lowii, C. Rothschildianum, and hybrids of this class that are in need of new rooting material, should be repotted as soon as possible. This section, not being such rampant rooters as many others, it is not desirable to use too large pots. The winter-flowering Cypripediums should have their flower spikes neatly tied up to their stakes as they become long enough.

PLEIONES.—As plants of P. lagenaria, maculata, Wallichii, and others pass out of flower they should be repotted, and this should be done when new roots are developing from the base of the new growths. Ordinary shallow Orchid pans without side holes are the most suitable receptacles for these plants. The old material should be shaken from the roots and all dead or decayed portions cut away. The finest and largest bulbs should be selected and made up into clumps of about a dozen or so in a six-inch pan, the smaller-sized bulbs to the same number being placed in five-inch pans, where they may be grown on for another season. The potting mixture

may consist of the same material as used for the green-leaved Cypripediums, but must, owing to the smallness of the plants, be pulled into smaller pieces. The pans should be filled one-third of their depth with clean crocks for drainage, and care should be taken not to damage the young roots which are pushing, as they are very susceptible to injury. After potting, the usual care and attention is necessary in the application of water to the roots until the plants are nicely established. The plants should be grown suspended during the winter months in a light position at the warm end of the Intermediate house. The cooler-growing varieties, as P. humilis, Hookeri, and yunnanensis, having completed their season's growth, are best suspended from the roof of the Odontoglossum house, and require only sufficient water to maintain the pseudobulbs in a plump and healthy condition. The re-potting may be done when their flowering season is past.

PHALÆNOPSIS that are developing their flower spikes must now be watered with great care; especially so should foggy or bad weather prevail, large supplies being no longer needed. It is not good practice to dip the plants or otherwise saturate the compost. Generally speaking I am opposed to dribbling of water to plants, but in the case of Phalænopsis extreme care is necessary, especially at this season, in the application of water to the roots. A slight sprinkling round the sides of the baskets, sufficient to keep the sphagnum moss in a living condition, is all that is necessary. All the tender, green-leaved species require careful watering, and should not be subjected to direct sunlight, even in winter.

MEXICAN LÆLIAS.—At the present time many of these plants, such as L. albida, L. autumnalis, L. Gouldiana, and the numerous varieties of L. anceps are developing their flower spikes, and care should be taken that none of them are allowed to suffer injury from cold by touching the glass. The flower spikes should be carefully tied down to neat stakes, so that they derive all the benefit of whatever light and sunshine we may get. Woodlice at this season do irreparable damage to the roots, and should be frequently searched for and destroyed. During the flowering season the plants need only sufficient water to keep the compost moist, and afterwards still less will suffice, until growth recommences.

BARKERIAS.—The different species of Barkeria are difficult to cultivate for long together, and for that reason are very seldom seen. These plants succeed under much the same conditions as Lælia anceps, exposed to all the light possible, with a liberal supply of fresh air at all times.

DENDROBIUMS of the evergreen section, such as D. thyrsiflorum, densiflorum, and allied species, have now finished their growths, and should be placed in a cool intermediate temperature to rest. Afford them just sufficient water to keep the leaves fresh and the pseudobulbs from shrivelling. The leaves should occasionally be examined for red spider,

which may infest them whilst in their resting quarters. It is unnecessary to state that this should be exterminated.

ODONTOGLOSSUM CITROSMUM generally thrives when grown suspended in the Mexican house, but now that the plants are about completing their growths, they will benefit from a slightly warmer and more genial atmosphere until their growths are fully completed. The plants should still be afforded plenty of water at the roots until the growth is finished. Plants of O. grande, O. Schlieperianum, and allied species, as they pass out of bloom, should be induced to rest by being placed in a dry position in a cool Intermediate house. O. Insleayi and its varieties splendens and leopardinum are producing flower spikes, and must have liberal treatment, receiving water whenever they require it. After the flowers fade the plants should be rested and treated in the same way as O. grande. Plants of O. crispum and hybrids may in the early part of the month be repotted, should they be in the desired condition, that is if the temperature can be maintained at its proper figures. Where the temperatures run down considerably during a spell of cold weather it had better be deferred until the early spring months.

CŒLOGYNE CRISTATA and its varieties are nearing the completion of their season's growth, and will soon be pushing flower spikes from the new pseudobulbs, at which stage the supply of water at the roots should be slightly reduced, but not to such an extent as to cause the plants to suffer. Well-rooted, pot-bound specimens may receive at intervals, until the flowering stage, weak manure water, preferably prepared from cow dung. Those Cœlogynes, such as C. barbata, ocellata, and others, that are developing flower spikes, should have water whenever they become dry.

CYMBIDIUMS.—Plants of C. Lowianum, C. Tracyanum, and the many hybrids that are now showing their flower spikes, should have water whenever the compost becomes dry, whilst others that are backward in this respect should be kept on the dry side until their spikes are observed to be pushing. Plants of C. grandiflorum that have finished their growth and are pushing flower spikes should be placed in a cool, light position, and the roots kept on the dry side during the winter. If kept at all moist during the winter months the flower buds invariably turn black and fall off.

GENERAL REMARKS.—The season has now arrived when the cleansing of the houses and their inmates must have attention. The glass must be made thoroughly clean, to admit every atom of light possible, and the woodwork, walls, and stages to destroy any pest which infect such places. The eradication of all insect pests is more easily accomplished during the winter months than in the busy growing season, therefore this work should be pushed on rapidly. It is needless to state that if such work is to be effectual it must be done thoroughly.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 4th and 18th. The first will be a Special Show of autumn-flowering Orchids. The Orchid judging will commence at 10 a.m., and the Committee will meet at 11.30 a.m. At the second meeting the Orchid Committee will meet at the usual hour, 12 o'clock noon. The succeeding meeting will be held on December 2nd.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on November 13th and 27th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

MR. J. HARRISON DICK.—A representative gathering of members of the Horticultural Press assembled at the Hotel Windsor, on September 11th, and presented Mr. J. Harrison Dick with a gold watch, suitably inscribed, and an illuminated address, to mark the occasion of his departure for America. Mr. Dick has been for nearly twenty years connected with the *Journal of Horticulture*, and for the last two years its chief Editor, and the presentation bears testimony to the high esteem in which he is held among his fellow pressmen. Mr. George Gordon made the presentation in a few well-chosen words, and was supported by Mr. C. H. Curtis, Mr. John Fraser, Mr. John S. Brunton, and others. Mr. Dick, who was to sail for New York at the end of the month, suitably responded. The *Journal of Horticulture* will in future be edited by Mr. Horace J. Wright, youngest son of Mr. John Wright, V.M.H., and for some time assistant Editor of the *Agricultural Economist* and *Agricultural Review*.

MR. J. GURNEY FOWLER, Treasurer of the Royal Horticultural Society, and Chairman of the Orchid Committee, has taken possession of his new estate, "Brackenhurst," Pembury, near Tunbridge Wells, Kent, and desires that communications be sent to him there instead of to Glebelands, South Woodford. The fine new block of houses is almost completed, and the collection will soon be removed to its new quarters.

We learn that Messrs. Stuart Low & Co., have removed their Orchid department to a new branch establishment at Jarvisbrook, Crowborough, some eight minutes walk from Crowborough station, on the Brighton and Tunbridge Wells line, and that the removal of the plants is now completed. A notice appears in our advertisement pages, and a visit of inspection is cordially invited.

As notified last month, Messrs Flory & Black have now taken over the

Orchid Nursery of Messrs. J. Veitch & Sons, Ltd., at Langley, Slough, of which they have acquired the freehold and the entire stock of seedling, hybrid, and other Orchids. A notice appears in our advertisement pages, and inspection of the establishment is cordially invited.

An Anglo-American Exposition, to celebrate the Centenary of Peace and Progress in the Arts, Sciences, and Industries of the United States of America and the British Empire, will be held at Shepherd's Bush from May to October, 1914. A Horticultural, Arboricultural, and Forestry Committee has been formed, with Sir Herbert Maxwell as Chairman and Mr. George Gordon as Vice-Chairman, with Sub-committees for fruit, flowers, forestry, and sundries. The Gardens of the Exhibition will be completely transformed in a manner worthy of the occasion.

The Fourth International Botanical Congress will be held in London from May 22nd to 29th, 1915. Organising and Executive Committees have been appointed. Membership of the Congress, which entitles to all publicatioas, is conditional upon subscribing to its regulations and payment of fifteen shillings, ladies accompanying members ten shillings. The work of the Congress will include the different branches of Botanical Science and the work of Nomenclature, Bibliography, and Documentation left over from the Brussels meeting, in conjunction with the permanent Bureau and the Executive Committee. English will be the official language of the Congress, but any language may be used in the discussions.

ORCHID PORTRAITS.

CATTLEYA ADULA GLEBE VAR.—*Gard. Mag.*, 1913, p. 779, with fig.

CATTLEYA GASKELLIANA ALBA.—*Journ. Hort.*, 1913, ii. p. 397, with fig.

CATTLEYA HARDYANA ALBA.—*Journ. Hort.*, 1913, ii. p. 397, with fig.

CATTLEYA MOSSIÆ (specimen).—*Horticulture*, 1913, p. 397, with fig.

CYPRIPEDIUM PICTURATUM (a well-flowered specimen).—*Gard. Mag.*, 1913, p. 797, with fig.

ODONTIODA CHARLESWORTHII.—*Horticulture*, 1913, p. 401, with fig. This has a branched panicle, and evidently belongs to O. Bradshawiæ.

ONCIDIUM LANCEANUM.—*Gard. Chron.*, 1913, ii. pp. 278, 279, fig. 102.

VANILLA PLANIFOLIA (a fruiting branch).—*Journ. Hort.*, 1913, ii. p. 347, with fig.

ANSWERS TO CORRESPONDENTS.

E A.—Laeliocattleya Robsoniæ. The hybrid originally appeared in 1903.

G.H.H.—Pholidots articulata, Lindl. Many thanks for the reference.

J.U.H.—A very fine form of Cypripedium Leeanum.

Photographs received, with thanks.—J.T.B.

Received with thanks—A.B.R., J.W., Sir H.M., H.G.A., E.A., J.C.J., H.B., F.W.T., H G., J.U.H, C.H.

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THE R.H.S. HYBRID ORCHID REGISTER.

FROM the following letter, which has been issued from the Office of the Royal Horticultural Society, Vincent Square, Westminster, it will be seen that the proposed Hybrid Orchid Register (see p. 297) has now taken definite shape :—

"*November 28th*, 1913.

"The President and Council, acting on the recommendation of a Sub-Committee of the Orchid Committee, have decided to establish a Register of Hybrid Orchids at Vincent Square. Mr. R. A. Rolfe, of Kew, has been appointed Recorder. The Register will include all known Orchids.

"The President and Council accordingly invite Orchid raisers and growers, amateur and professional, to bring their Hybrids, *when in flower for the first time* (even though they may not then be sufficiently developed to enter for award), and to enter the name and parentage of the plant, together with the exhibitor's name and address, on a Registration Form, which can be obtained from the R.H.S. Office, Vincent Square, S.W. This Registration Form should be sent with the plant, and it will be placed before the Orchid Committee, who, after satisfying themselves that the name is in order, will enter it on the Register. Once so recorded the name must be recognised for all crosses of similar parentage when subsequently shown, unless valid reason can be otherwise produced.

"W. WILKS, Secretary."

This Register will thus be of an International character, and, being compiled in harmony with the Vienna and Brussels Rules of Nomenclature, its value in securing a uniform system of Hybrid Nomenclature will be incalculable. It now remains for all Orchidists to co-operate in placing the system upon a permanent footing, and we have no doubt that when once the necessity of such a standard is recognised they will respond loyally. There may be a few difficulties at first, which may be regarded as the inevitable legacy of the past, but they will vanish with the determination to surmount them.

There are one or two matters in which hybridists can render valuable assistance. In collecting the records from all available sources a large number of hybrids have been found without record of parentage, or with doubtful or contradictory records, and it is possible that this in some cases may have arisen through inadvertence, sometimes on the part of the reporter in failing to copy the record supplied with the exhibit. In some cases hybrids have been overlooked altogether, and in various ways have failed to get recorded. The present arrangement will afford an opportunity of remedying the omission, and it would facilitate the matter if such records were sent to the Recorder direct. The desirability of furnishing such records will be seen from the fact that only those hybrids can be admitted whose parents are known. This is inevitable, because the Register is to be kept in triplicate, each hybrid appearing three times over, under first parent, second parent, and name of hybrid. In order to be admitted the record of a hybrid must be complete, and the present opportunity should be taken of remedying any known deficiencies, each raiser supplying deficiencies in the records of his own productions. We now commend the matter to the earnest attention of Orchidists without distinction of nationality.

ODONTOGLOSSUM GRANDE.

BOTANICALLY, no doubt, Odontoglossum grande reveals itself as an Odontoglossum, but one or two differences seem worthy of consideration. Its bulb is, in my opinion, quite different from the ordinary Odontoglossum, also its leaves and mode of flowering, *i.e.*, the flower spike coming up with the young growth; and altogether it looks to me as if it occupied a place between the Oncidiums and the Odontoglossums. But perhaps the strongest fact has yet to be considered, *i.e.*, *so far as I know*, it has not been, and will not, cross with any other Odontoglossum. If there are records I do not know of them, and I should like to ask if, to your knowledge, it has ever been done, and, if so, with what variety, and with what result? Also have the flowers ever been shown? If it has not, I think this perhaps the *strongest* argument in favour of its being considered something distinct from an ordinary Odontoglossum, but if it has my contention falls to the ground. It would be interesting to have the experience of others on this question.

RICHARD ASHWORTH,
President of the Manchester and
North of England Orchid Society.

Ashlands, Newchurch,
Manchester.

Mr. Ashworth raises an interesting question. Odontoglossum grande certainly does not bear much resemblance to the Odontoglossums of the crispum group, and, we believe, has not been successfully hybridised with them. One record of an experiment with O. grande occurs to us. About

five years ago Dr. Otto N. Witt wrote, from Berlin: "Odontoglossum grande is supposed to give negative results either way with all other Odontoglossums excepting O. Insleayi and O. Schlieperianum. Last year I determined to try for myself, and I fertilised two flowers of O. grande with pollen of O. crispum. Two pods were formed, which grew to a large size, but after about four months time both fell off in an unripe condition" (*O.R.*, xvi. p. 349).

O. grande, Lindl., is the best known member of a small group of allied Central American species, the others being O. Insleayi, Lindl., O. Schlieperianum, Rchb. f., and O. Williamsianum, Rchb. f., and none of them, so far as we know, have yielded hybrids. Curiously enough, O. Insleayi was originally described by Lindley as Oncidium Insleayi, Barker, and as such was figured by Bateman, while of O. grande Lindley wrote: "Certainly this is a most extraordinary plant. Its habit is altogether that of Odontoglossum, with which its unguiculate lip and peculiar column also correspond; but the tubercles at the base of the lip are those of Oncidium."

It is very difficult to separate Odontoglossum from Oncidium by absolute characters. When Lindley monographed the genus, in 1852, in his *Folia Orchidacea*, he remarked that it was chiefly distinguishable by its column being long, and usually narrow at the base, or at all events not tumid there. He added, "and by the base of the lip being parallel with the face of the column," but this does not always apply. Bentham also remarked: "The genus is, upon the whole, a natural one, though sometimes very difficult to separate from Oncidium, and occasionally thrown into confusion by the introduction of species which do not correspond to the generic character. Thus O. roseum, Lindl., is a Cochlioda, O. vexillarium, Rchb. f., has rather the characters of Miltonia, &c." Odontoglossum contains several distinct sections, of which the O, grande group is one of the most distinct, but we think that no better place for it can be found. There are many genera which contain very distinct sections.

Speaking of hybrids reminds us that we saw the other day, in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle, a capsule of O. grande obtained by crossing with the pollen of *Zygopetalum Mackayi*. It was eleven months old and apparently perfectly healthy. The plant was throwing up a new flower-spike. It will be interesting to see whether the seeds are plump, and especially to see if seedlings are obtained. The reverse cross was made at the same time, and Mr. Wright showed us some of the seeds, which seemed plump and good. Some have already been sown, but we fear that it seedlings are obtained they may simply reproduce the *Zygopetalum*, as in other crosses between the two genera.—ED.

ORCHIDS AT KEW.

DURING the past few weeks the weather has been particularly favourable for keeping Orchid flowers, as usually during November such subjects as Lælias, Cattleyas, and more particularly Calanthes and Dendrobium Phalænopsis, are almost invariably spoilt by fogs in this district. This year, fortunately, we have had no bad fogs up to the time of writing, and both the warm and cool divisions present a good display of flowers.

Some capital forms of Cattleya labiata may be seen, also various hybrids of C. Dowiana, C. Bowringiana, and others, one plant of C. Portia having a spike with a dozen good flowers. Læliocattleya Tyresias (L.-c. elegans var. Turneri × C. Bowringiana), is a very robust grower, and is now bearing large trusses of flowers, which are good in shape and colour. The diminutive Cattleya luteola is also in bloom, among many others.

A few of the most interesting subjects in the Cool house may be mentioned. Stenoglottis longifolia is a terrestrial species which produces a very pleasing effect when several plants are intermixed with other autumn-blooming subjects, and the flowers last for weeks in perfection. Stenoglottis thrive in a mixture of leaf mould two parts, and peat and sphagnum each one part, with a little sand added. Several species of Lycaste are flowering freely, L. lasioglossa and L. gigantea being the best. One plant of the latter is remarkably fine, having fifteen large greenish-brown flowers from two bulbs. The pretty blue Dendrobium Victoria-Regina is suspended from the roof of the Cool house close to Sophronitis cernua, uow flowering profusely, and the two give a most pleasing effect. Near them are plenty of Cypripedium insigne Sanderæ, Fairrieanum, Charlesworthii, and several of their hybrids, with Masdevallia tovarensis and others.

Among the many things to be seen in bloom in the warm division are two good plants of Oncidium bicallosum, and the very distinct O. cucullatum, and these, like most of the other members of the genus, will last for weeks in flower. The charming little Cirrhopetalum campanulatum is again in bloom, and is much admired. Numerous Cypripediums are also flowering, including good forms of Mancunian, Actæus, and Maudiæ, with many of the familiar autumn-flowering hybrids. H. L. S.

ODONTOGLOSSUM PESCATOREI: SPECIMEN PLANT.

(See *Frontispiece*).

THE Frontispiece to the present volume consists of a magnificent specimen of Odontoglossum Pescatorei, from the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt, for which Mr. H. G. Alexander received a Cultural Commendation from the R.H.S. on April 20th, 1909. It bears three spikes and an aggregate of 155 flowers, and forms quite a picture.

CALENDAR OF OPERATIONS FOR DECEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE climatic conditions experienced during the past month have been abnormal, and the amount of light has been most beneficial to all Orchids. Owing to the very favourable season plants have made satisfactory growth, and with the delightful autumn sunshine this growth is well-ripened, and undoubtedly will produce flowers abundantly when the flowering season comes round. We have again reached the period when we can sum up the results of our practice, either successfully or otherwise. During the short, dull days of December it is a very easy matter for plants to go wrong, in spite of all the cultivator can do for them, especially where the houses are crowded, or convenience is limited.

TEMPERATURES.—The temperatures of all the divisions will reach their lowest point during the present month, and should, with slight variation, be kept at the figures given in the January number. One or two errors are often made as regards the winter temperatures of Orchid houses. An excessive amount of fire heat is most detrimental to the plants, as it not only undermines their constitution but also dries up the compost, which entails unnecessary labour in watering to keep the plants from shrivelling, and also causes the compost to become sour and decomposed. A low, damp atmosphere must be strictly guarded against during the winter months, as these conditions bring nothing but trouble, and should the temperatures fall below the requisite degree in any of the divisions, no harm will accrue provided a dry atmosphere is maintained. Most of the evils with which we as Orchid growers are troubled are attributable to a faulty atmosphere in the houses and careless watering. Thrip and other insect pests are also encouraged, likewise the much-dreaded spot disease, which is generally brought about by one excess or the other.

WATERING AND VENTILATION.—These two important matters will need great attention, especially during wet, cold weather. As regards the application of water to the compost I must again urge the necessity of moderation, always being sure water is required before applying it. In the matter of ventilation it should be always a rule to have a little air on somewhere, in all the divisions, as it does away with those "stuffy" conditions which are prevalent in many houses. Some growers are apt to ridicule the more modern treatment of fresh air to our houses, but I am firmly convinced that this is a point where many go wrong, and that the great improvement made in Orchid culture is due to the more rational methods adopted at the present day. It is not so much on general principles where the great mistakes are made but in the smaller details of our practice.

MILTONIA VEXILLARIA AND ITS HYBRIDS.—The summer-flowering

varieties of these useful Orchids, which were potted as advised a few months ago, will now be in active growth, and may have water applied to them whenever they become dry. Between each application the compost should be allowed to become fairly dry. They delight in a moderately damp position, in a warm Cattleya house, during the winter months, and should be elevated well up to the light. The autumn-flowering varieties of M. vexillaria, Leopoldii and superba, which are at present in flower, or have just passed out of bloom, may be repotted if the young growths are of sufficient strength and about to push new roots. The type of M. vexillaria known as M. v. robusta, which flowers later than the summer-flowering varieties, may be treated in precisely the same manner as the autumn-flowering varieties. The hybrids, M. Bleuana and M. Hyeana, which are irregular in their flowering season, may have new compost given them whenever the young growths are in the desired condition. By close observation of these trifling matters plants may be potted with a minimum amount of risk almost at any season. It is surprising that so many do not succeed with these plants. Should cold weather prevail, necessitating more fire heat to maintain the temperatures, constant watch must be kept for yellow thrip and other insect pests, which, if not eradicated, do irreparable harm. A good pair of eyes is a valuable asset to the cultivator.

PHALÆNOPSIS.—These Orchids are among the most difficult to manage during the winter months. The succulent and sensitive nature of their leaves, and the absence of pseudobulbs, make them specially susceptible to injury, which renders extreme care and watchfulness necessary on the part of the grower. The leaves this season are well consolidated, and will be better able to withstand hardships than they otherwise would. The well-ripened plants should pass the winter quite safely in a temperature of about 60°, provided the atmosphere is maintained in a fairly dry condition. A superabundance of moisture, either at the roots or in the atmosphere, is most harmful to these succulent plants during the winter months. When the tips of the roots are sealed over only sufficient to keep the leaves plump and prevent shrivelling is necessary. Those plants that have not finished their growth should be kept growing gently through the winter.

*Z*YGOPETALUMS.—As these plants are now growing freely, they will require water whenever they become dry at the roots. The popular *Z.* Mackayi produces its flower spikes at this season, and owing to their colour are most acceptable. When in full growth these plants require an abundant supply of water, and, as their thick fleshy roots resent a sour compost, it may be advisable when flowering is over to repot any that may be in need of new rooting material. A suitable compost is the kind advised for green-leaved Cypripediums. *Z.* Mackayi, *Z.* crinitum, *Z.* Clayi, and several others grow well in a warm shady corner of the warm Intermediate house,

elevated near to the glass to receive as much light as possible. The rare *Z.* Ballii, now in flower, requires the same treatment as *Z.* Mackayi. *Z.* maxillare and *Z.* m. Gautieri will thrive under the same conditions, but succeed best grown on the pieces of tree fern on which they are usually imported. They are now at rest, and should be suspended from the roof of the same house, and be kept moderately moist at all times. The Intermediate house is also the best place to grow such bigeneric hybrids as *Zygocolax* Veitchii and others. They succeed under precisely the same conditions as *Zygopetalums*. *Zygopetalum* rostratum and *Z.* Roeblingianum should be grown in the warm, moist, plant stove, whilst *Z.* Burkei requires Cool house treatment. The miniature Promenæa xanthina, stapelioides, and Rollisonii also succeed suspended from the roof of the Cool house.

CYPRIPEDIUMS.—The winter-flowering Cypripediums need no words of recommendation from me, as their floriferousness, the ease with which they can be grown, and the lasting quality and beauty of their flowers are all well known. Another great consideration to those who live in large towns, or near them, is that they suffer less from fog than almost any other Orchid. Cypripediums are always in active growth, hence absolute dryness at the roots is injurious. During their flowering season the minimum amount of moisture at the roots is required. But whenever the compost becomes dry the plants should have water afforded them, care being taken that they become fairly dry between each application. A moist atmosphere must be maintained always, but care should be taken to prevent a saturated one with a low temperature. During their flowering period a night temperature from 55° to 60°, with a slight rise during the day, will suffice.

ODONTOGLOSSUMS.—The species and the many hybrids of this genus that were potted in September may be afforded more liberal supplies of water at the roots, in accordance with their requirements. The new roots will by this time have made considerable progress in the new compost, hence they will take up more moisture. The usual precautions are necessary against the compost becoming in a saturated condition.

LÆLIA ANCEPS will be in flower; also L. albida, autumnalis, and Gouldiana, and with the aid of the numerous Cattleya and Læliocattleya hybrids it is now possible to make the Cattleya house quite gay at the festive season, when their beautiful flowers are much appreciated. When these plants pass out of flower, only sufficient water is needed to keep the pseudobulbs fresh and plump. The atmosphere should be kept moderately moist to prevent attacks of insect pests, and fresh air, according to external conditions, should always be afforded them.

CATTLEYAS.—Plants of Cattleya Warneri that are now starting into growth should be placed well up to the light at the warmest end of the house, and until the plants open their flowers water sufficient to keep the

compost moist should be given. Any that are in need of new rooting material should be attended to as soon as the new roots are seen to be pushing from the base of the pseudobulbs. The general repotting of this genus is best deferred until after the flowers fade, as at that season numerous roots push out from the base of the newly-made pseudobulbs, and the compost being kept on the dry side induces the plant to take a rest.

There are numerous Cattleyas, Læliocattleyas, Sophrocattleyas, Brassocattleyas, and plants of similar nature, which are in various stages of growth, and must have water afforded them with discretion during the dull days of the present month, when evaporation is at its very lowest point. Care should be taken in maintaining the temperature at the desired point, as the roots of this family are of a sensitive nature, and, like all Orchid roots, are easily injured by a chill or excessive moisture. The atmosphere of the house in which the flowering plants are placed may with safety be kept on the dry side at this season.

CALANTHES.—As varieties of the Calanthe vestita section pass out of flower the plants should be placed in a dry position, close to the roof of a Warm house, where the light will assist to mature the pseudobulbs. Water must be withheld till after the plants are repotted in the spring.

VANDA TERES, having now completed its growth, and the tips of the roots being sealed over, should be allowed a long season of rest, affording only sufficient water to prevent shrivelling. They should receive all the light possible, in a house having an intermediate temperature. V. Hookeriana and the hybrid V. Joaquimiæ should remain in the Warm house until their growth is completed. V. Amesiana, Kimballiana, and Watsonii, whilst pushing their flower-spikes, should have the compost kept moist, but the supply of water should be reduced as soon as the flowers expand, which will keep them a longer time in good condition. When their flowering period is over only sufficient water should be given to prevent shrivelling. These plants need a long rest, and are capable of withstanding considerable drought without injury.

GENERAL REMARKS.—The chief aim of the cultivator at this season should be to keep those plants which are at rest practically dormant, and those that are in a growing state slowly progressing. Growth will be slow at this season, and nothing will be gained in the end by pushing it. The cleansing of the plants and the house will take up considerable time, and should be brought to a conclusion as speedily as possible, so that with the new year we may be able to deal with matters as they come to hand. I will close my remarks for the year with what I consider the cardinal points of our practice, namely the careful use of the water-pot, cleanliness in all things, a supply of fresh air to the plants whenever possible, and persistent watchfulness against insect and other pests.

ANGRÆCUM RECURVUM.

The annexed figure represents the striking Madagascar Angræcum recurvum which was exhibited at the Royal Horticultural Society's meeting held on November 18th last, by Messrs. Charlesworth & Co., Haywards Heath, and received an Award of Merit. The photograph was kindly forwarded by the exhibitors, and represents the flowers about half natural size. The flowers are pure white, and are borne singly on

Fig. 65. Angræcum recurvum.

slender axillary pedicels, the spur being slender and about twice as long as the segments. The leaves, which are not shown in the photograph, are larger than in the one originally figured by Thouars (*Orch. Iles. Afr.*, t. 25). It is a very distinct and striking species.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 4th, when there was a good show of Orchids, though nothing comparable with the magnificent display seen at the special meeting held a year ago. Whether the arrangements were altered because of the autumn show held at Ghent in the previous week we cannot say, but the notices in the arrangements that Orchid judging would commence at ten o'clock, and that the Orchid Committee would meet at 11.30, were not carried out, and the meeting resolved itself into the ordinary fortnightly one. The awards consisted of six medals, six Awards of Merit, and three Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, S. W. Flory, W. H. White, Arthur Dye, H. G. Alexander, J. E. Shill, G. Hunter, W. H. Hatcher, J. Cypher, J. Charlesworth, C. H. Curtis, A. McBean, T. Armstrong, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, de Barri Crawshay, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a charming group, consisting of about twenty plants of the very distinct Cattleya Portia cœrulea—the best bearing an eight-flowered spike—together with the two parents, C. Bowringiana violacea and C. labiata cœrulea, all of which have flowers of a peculiar light slaty blue shade. There was also a plant of C. Portia Lady Colman, a fine purple form with an exceptionally large flower (Silver Banksian Medal).

Lt.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent the handsome Odontioda Latona Westonbirt var., bearing ten fine flowers, and Cattleya Esther (Gaskelliana × Cleopatra), a bright rose-coloured hybrid with the front of the lip crimson.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), sent three good Cattleya labiata, the variety Minnie being very richly-coloured.

E. H. Davidson, Esq., Orchidhurst, Twyford, sent Odontioda Gladys (Odontoglossum Rossii rubescens × Odontioda Bradshawiæ), a pretty hybrid, having the sepals and petals spotted with Indian red, and the lip rose with a yellow crest.

F. Ducane Godman, Esq., South Lodge, Horsham, sent a small form of Cattleya Mantinii, with lavender-tinted flower.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), sent the pretty white Vanda Kimballiana alba, Cypripedium Vogelsang var. punctatum, a well-spotted form, Cattleya Clarkiæ, and two fine forms of C. Fabia, one bearing two five-flowered spikes.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent the fine Cypripedium King George V., and Odontoglossum crispum xanthotes Golden Star, bearing a spike of twelve fine flowers, with deep golden blotches on the sepals and lip.

His Grace the Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), sent Cypripedium Lord Ossulston Blenheim var., a handsome form.

C. J. Phillips, Esq., Sevenoaks (gr. Mr. Bucknell), sent Cattleya Hardyana alba, with white sepals and petals and a richly-coloured lip, and a very red form of Oncidioda Cooksoniæ with a well-developed panicle.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Odontoglossum ashteadense, a dark claret-coloured flower with a few white markings, and the front of the lip white.

R. G. Thwaites, Esq., Chessington, Streatham, sent Cattleya labiata alba, and a prettily blotched Odontoglossum.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Little Gem Westfield var., a well-coloured hybrid of good shape.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, including the handsome Paphinia cristata with a two-flowered scape, fine forms of Cattleya Dowiana aurea, labiata, Portia, Hardyana, Venus, Tityus, Enid, Whiteleyæ, Fabia, and a good C. Fabia alba, several good Oncidium Forbesii and varicosum, a richly-coloured Cypripedium Rolfei, well-flowered examples of Epidendrum vitellinum autumnale and Maxillaria nigrescens, Odontoglossum Dora, O. armainvillierense xanthotes, and others (Silver-gilt Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including some good Læliocattleyas, Brassolælia Veitchii, Cypripedium insigne Harefield Hall var., C. Gaston Bultel vars. King Edward VII., Germaine Opoix, and Mrs. Spender Clay. Odontoglossum Cooksonii × Rolfeæ, yellow with brown blotches, Cattleya Dusseldorfii Undine, C. Armstrongiæ, Hardyana, forms of C. Fabia, Mantinii, and other good hybrids of C. labiata and Bowringiana (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a bright and pretty group, including good forms of Dendrobium Phalænopsis, D. P. album, D. superbiens, Oncidium Forbesii and varicosum, Vanda cœrulea, Brassocattleya Leemanniæ, the rare Lælia Perrinii nivea, Læliocattleya Ophir, Cypripedium Maudiæ, Phalænopsis amabilis, Cattleya Fabia, C. labiata, and the white-petalled varieties alba, Cooksonii and reedleyensis (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a good group, including Cattleya labiata, Bowringiana, Pittiæ, and Minucia, Dendrobium Phalænopsis, Cypripedium insigne Sanderæ, C. Sir Redvers Buller, C.

Leeanum Clinkaberryanum, Phalænopsis amabilis, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting and varied group, including some good Cattleya Fabia, Hardyana, Peetersiæ, Cooksoniæ, and C. Dusseldorfii Undine, Læliocattleya Saphirata (L.-c. Canhamiana × C. maxima), a large blush white hybrid, veined with rose on the lip, Cypripedium Harold (hirsutissimum × Leeanum), C. insigne Sanderæ, C. Priam superbum, Cirrhopetalum Rothschildianum, Micholitzii and mundulum, Saccolabium acutifolium, Dendrobium ciliatum, Phalænopsis Esmeralda, Bollea Lalindei, and others (Silver Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, sent a brightly-coloured form of Odontioda Cupid.

Messrs. Flory & Black, Orchid Nursery, Slough, sent a good form of Odontoglossum crispum, a fine Cattleya amabilis, Cypripedium Mary Lee, and Brassocattleya Puritan (L.-c. Ascania × B. Digbyana), a pretty white flower, with a fringed lip and some yellow on the disc.

Messrs. Hassall & Co., Southgate, sent a good group, including forms of Cattleya Dowiana aurea, labiata, Hassallii, Pittiæ, Minucia, a fine C. Mantinii nobilior, and C. Sylvia (Fabia × Dowiana aurea), Cypripedium Niobe with four flowers, C. Thalia Mrs. Francis Wellesley, and others.

Messrs. J. & A. McBean, Cooksbridge, staged a small group, including the pretty Cymbidium Doris, Cattleya suavior, labiata, and Fabia alba, Brassocattleya Hyeæ and Leemanniæ, Odontioda Thwaitesii, Diana, and Bradshawiæ, Oncidium cheirophorum, well-grown plants of Odontoglossum Pescatorei, and others.

AWARDS OF MERIT.

CATTLEYA ANDREANA MCBEAN'S VAR. (Dowiana aurea × Pittiæ).—A handsome flower, having rose-purple sepals and petals with a tinge of yellow, and the lip crimson-purple with golden yellow throat and base. Exhibited by Messrs. J. & A. McBean.

CYPRIPEDIUM ESTELLA (Godefroyæ × Fairrieanum).—A dwarf and pretty hybrid, fairly intermediate in shape, and having the flower dotted and reticulated with purple on a cream-yellow ground. Exhibited by Messrs. Sander & Sons.

CYPRIPEDIUM OLYMPUS (Alcibiades × Leeanum Clinkaberryanum).—A very fine hybrid, having a broad white dorsal sepal with a green base and a few purple lines, and the petals and lip greenish yellow tinged with brown. Exhibited by Lt.-Col. Sir G. L. Holford.

LÆLIOCATTLEYA OLENUS BLENHEIM VAR. (L.-c. bletchleyensis × C. Dowiana aurea).—A very fine form, having broad purple-rose sepals and petals, and a dark ruby red lip, with yellow veining in the throat. Exhibited by His Grace the Duke of Marlborough.

ODONTOGLOSSUM CRISPUM XANTHOTES WESTONBIRT VAR.—A very beautiful form, having very broad segments, with deep golden yellow blotches on the sepals and lip. The spike bore eleven flowers. Exhibited by Lt.-Col. Sir G. L. Holford.

SOPHROCATLÆLIA NIOBE (L.-c. Gottoiana × S.-l. heatonensis).—A handsome hybrid, having large bright reddish rose sepals and petals, with a darker lip, and some yellow in the throat. Exhibited by Messrs. Charlesworth & Co.

CULTURAL COMMENDATIONS.

CŒLOGYNE FIMBRIATA.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a very large and well-flowered specimen.

ODONTOGLOSSUM CRISPO-HARRYANUM THE DELL VAR.—To Mr. J. E. Shill, grower to Baron Bruno Schröder, The Dell, Englefield Green, for a large and well-flowered plant, bearing a spike of fourteen very fine flowers.

SIGMATOSTALIX RADICANS.—To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, for a very large and profusely-flowered specimen.

At the meeting held on November 18th there was a very fine show of Orchids, and the awards consisted of seven medals, six Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), de Barri Crawshay, Gurney Wilson, F. Sander, R. G. Thwaites, F. J. Hanbury, T. Armstrong, A. McBean, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, W. P. Bound, Arthur Dye, W. H. White, S. W. Flory, W. Bolton, C. J. Lucas, R. B. White, and Sir Harry J. Veitch.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Cypripedium Gulliver (Mrs. Wm. Mostyn × Sultan), a remarkably dark-coloured hybrid, having the dorsal sepal purple-black below, with a broad whitish margin, and the petals and lip very dark purple-brown.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. Chapman), sent Cypripedium Chapmaniæ superbum (Fairrieanum × Calypso), with much purple veining on the dorsal sepal, two distinct forms of Odontioda oakwoodiensis (O. Bradshawiæ × Odontoglossum percultum), a very pretty rosy flower spotted with cinnamon-brown, and O. Hippolyta Cookson's var., a very fine form, having the flower almost entirely orange-brown with a white margin.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent Sophrolælia Sunray (S.-l. Marriottiana × L. cinnabrosa), with elongate brown sepals, deep yellow petals, and a dark purple lip, Sophrocattleya Saxa, Odontoglossum nigrescens, and handsome forms of O. Aireworth, Gladys, and illustre.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), sent a fine orm of Brassocatlælia Triune (L.-c. Hyeana × B.-c. langleyensis), with lilac-rose sepals and petals, and a darker lip with some yellow in the throat.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Brassocattleya Maronii Warnham Court var., a very beautiful white variety with a yellow disc to the lip.

E. G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), sent a good plant of Vanda Sanderiana with two spikes, Odontoglossum Menier (gandavense × amabile), a fine hybrid, having the sepals and petals well blotched with red-purple, O. azureum, a pretty light violet hybrid margined with white, and O. illustre var. Maud, a pretty purple form, with a white margin to the sepals and petals and a white apex to the lip.

Mrs. Temple, Leyswood, Groombridge (gr. Mr. E. Bristowe), showed a promising hybrid Cattleya, derived from C. Mantinii and C. labiata.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent the charming Vanda cœrulea Wrigleyi, bearing a spike of ten beautiful white flowers with a rose-pink lip.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Royal George, and Læliocattleya Lady Oliphant (L.-c. Norba × C. Souvenir de Queen Victoria), having lemon yellow sepals and petals of good shape, and a rose-purple lip with numerous light yellow lines.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, including the beautiful white Brassocattleya Veitchii Queen Alexandra, Cattleya Portia, Fabia, Vulcan, Clarkiæ, and Antiope, handsome forms of Læliocattleya Juno, Aureole, Bola, St.-Gothard, and amabilis, Sophrocatlælia Carna, Oncidium Forbesii and varicosum, Miltonia Bleuana, a well-flowered plant of Maxillaria nigrescens, Vanda cœrulea, Epidendrum vitellinum, Odontioda Madeline and Brunette, Cypripedium Fairrieanum × Niobe, much veined with purple, and a beautiful series of Odontoglossums (Silver Flora Medal).

Messrs. James Veitch & Sons, Chelsea, staged a very effective group, the centre consisting of a number of pure white Calanthe Harrisii, with well-flowered C. Veitchii on each side, while the ends were made up with plants of Cypripedium insigne Sanderæ, Harefield Hall var., C. Leeanum, Maudiæ, and others, with a few good Odontoglossums (Silver Flora Medal).

Messrs. James Cypher and Sons, Cheltenham, staged a good group, including a well-flowered plant of Masdevallia tovarensis, Miltonia Bleuana, Odontioda Bradshawiæ, Cattleya Vulcan, Cypripedium Arthurianum pulchellum, insigne Sanderæ, Oddity, and Harefield Hall var., C. Venus var. Boltonii, Madame Jules Hye, Minos Veitchii, triumphans, Sir Redvers Buller, and others (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Langley, Slough, were awarded a Silver Banksian Medal for a good group, including Brassocatlælia Morna, Læliocattleya Osram (L.-c. Violetta × C. Dowiana aurea), a promising lilac-rose hybrid with darker lip and some yellow in the throat, L.-c. Taurus (L.-c. bletchleyensis × C. Bowringiana), having purple flowers with a yellow blotch on the disc of the lip, Cattleya lucida, Cypripedium Germaine Opoix, some good forms of C. Idina, Leeanum, Thalia, and others.

Messrs. W. B. Hartland & Co., Cork, staged a good group, including Læliocattleya Parysatis, Cymbidium Tracyanum and Maggie Fowler, Odontoglossum Groganiæ, Cypripedium insigne Sanderæ and Harefield Hall var., C. Thalia Mrs. Francis Wellesley, C. fulshawense, Cattleya Portia and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including good forms of Cattleya Fabia, Portia, Hassallii, Mantinii, Dowiana aurea, Sylvia, Pittiæ, Cypripedium Niobe, fulshawense, Minos Youngii, Thalia Mrs. F. Wellesley, the clear yellow C. insigne Gladys, and other good forms (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including Oncidium Forbesii and trulliferum, Miltonia Phalænopsis, Vanda cœrulea, Cattleya Dowiana, Rothschildiana, Fabia, the chaste white C. labiata alba, and C. l. reedleyensis, the latter with an orange-yellow throat to the lip, Sophronitis cernua, Odontioda Leeana, and a number of good Cypripediums (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent Cypripedium Arthurianum Orchidhurst var. (insigne Harefield Hall var. × Fairrieanum), much larger than the type and with large spots on the dorsal sepal, and Odontoglossum promerens var. Bristoweanum (eximium × crispum Graireanum), a well-coloured variety.

Messrs. Sander & Sons, St. Albans, sent Læliocattleya Mauretania (Canhamiana × Martinetii), a handsome thing, with very broad rosy sepals and petals and a rosy crimson lip, Cypripedium Royal Monarch (bingleyense × Leeanum Clinkaberryanum), a very large flower, most like the latter, but with a pretty rosy lilac suffusion on the dorsal sepal, and C. insigne Louis Sander (i. Harefield Hall var. × i. McNabianum), most like the former but with very dark blotches on the dorsal sepal.

AWARDS OF MERIT.

ANGRÆCUM RECURVUM.—A very striking Madagascar species, with large fleshy leaves, and numerous solitary pure white flowers produced on long slender peduncles from the lower part of the stem. Exhibited by Messrs. Charlesworth & Co. (see figure on page 369).

CYPRIPEDIUM CYCLOPS (Actæus × alportense).—A handsome hybrid, having a large concave green dorsal sepal, spotted with brown, and a broad

white margin, with the petals and lip shining brown. Exhibited by Lt.-Col. Sir. G. L. Holford.

CYPRIPEDIUM SCHRŒDERI VAR. KENTORE (œnanthum superbum × Fairrieanum).—A very pretty dark variety, having the dorsal sepal copiously veined with purple on a light ground, and the petals and lip heavily marked with chocolate purple. Exhibited by Messrs. Armstrong & Brown.

DENDROBIUM LEEANUM LANGLEY VAR.—A fine plant, bearing two spikes of bright rose-purple flowers, with an intense claret-purple lip. Exhibited by Messrs. Flory & Black.

LÆLIOCATTLEYA FERONIA CHARLESWORTH'S VAR. (C. Enid × L.-c. Haroldiana).—A remarkably fine hybrid, bearing a spike of five flowers, most like the former, and having very broad blush-pink sepals and petals, and a bright purple lip, with some yellow in the throat. Exhibited by Messrs. Charlesworth & Co.

MILTONIODA HARWOODII SHRUBBERY VAR. (M. vexillaria × C. Nœtzliana).—A very fine form, bearing a spike of nine large magenta-rose flowers, with the crest of the lip yellow. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

CATTLEYA PORTIA WESTONBIRT VAR.—To Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir G. L. Holford, for a very strong plant, bearing three spikes, each with seven large bright purple flowers.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on October 30th, 1913, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, W. H. Hatcher, J. Howes, J. Lupton, D. McLeod, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a very fine group, to which a Large Silver-gilt Medal was awarded. It contained some good Odontoglossum crispum varieties, Odontioda Charlesworthii, numerous Cypripediums and Cattleyas, Brassocattleya Maroniæ, Lælio-cattleya luminosa aurea, Dendrobium Phalænopsis, and D. formosum.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was awarded a Silver-gilt Medal for a fine group, including Cattleya labiata R. I. Measures, Mrs. A. Warburton, reedleyensis, alba, and Cooksoniæ, C. Fabia ardentissima, Brassocattleya Veitchii Queen Alexandra (to which a Silver Medal was awarded), with Cypripediums and Odontoglossums in variety.

W. R. Lee, Esq., Heywood (gr. Mr. Branch), was awarded a Silver-gilt Medal for a choice group of Cypripediums, Odontoglossum crispum

xanthotes, O. Ceres Plumpton Hall var., Odontioda Charlesworthii, and Miltonia Bleuana.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), was awarded a Large Silver Medal for a group of Odontoglossums in variety, some good Cattleyas and choice Cypripediums, with a well-grown plant of Dendrobium formosum giganteum.

Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), was awarded a Silver Medal for a group of choice Cypripediums, Cattleyas, and Odontoglossums.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), staged a small group of choice Cypripediums and Epidendrum vitellinum, a Silver Medal being awarded.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), staged Cattleya Fabia and Cymbidium erythrostylum.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a pretty group, including about thirty plants of Dendrobium Phalænopsis, three D. P. album, Cypripedium Daisy Barclay, Watsonianum, Boltonii, and other choice hybrids, Cattleya Fabia alba, Thurgoodiana magnifica, armainvillierensis, and Mantinii nobilior, with Epidendrum vitellinum and Dendrobium Dearii, a Special Vote of Thanks being accorded.

Messrs. Cypher & Sons, Cheltenham, received a Silver Medal for a nice group of Cypripediums, with Cattleya Bowringiana sanguinea, and a good C. Mantinii nobilior.

Messrs. A. J. Keeling & Sons, Bradford, were also awarded a Silver Medal for a group of Cypripediums, Maxillaria picta, and others.

FIRST-CLASS CERTIFICATE.

Cattleya Iris Walton Grange var., a very round flower, of good even colour, with bright lip, from Wm. Thompson, Esq.

AWARDS OF MERIT.

Cypripedium Actæus var. leucoxanthum (Bianca × Actæus); Odontoglossum ardentissimum Violette, and O. Plotinum (crispum Grarieanum × luteopurpureum), from Wm. Thompson, Esq.

Odontoglossum Ne Plus Ultra, a well-grown plant, with two spikes (a Cultural Certificate with Bronze Medal being awarded to the Gardener), and Cattleya Armstrongiæ var. Jasper, from *Z.* A. Ward, Esq.

Cattleya Isidor (Mantinii × gigas), from A. Warburton, Esq.

Odontoglossum amabile var. Bella Donna, from R. Ashworth, Esq.

Cypripedium Tracyanum var. virginale and Oncidium bicallosum, from Messrs. A. J. Keeling & Sons.

At the meeting held on Thursday, November 13th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs.

R. Ashworth, H. Bell, J. Cypher, J. Evans, J. Howes, F. K. Sander, W. Shackleton, H. H. Smith, W. Thompson, G. Weatherby, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine miscellaneous group, in which autumn-blooming Cypripediums were particularly well represented.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a fine group of Cattleyas and Cypripediums, with Sophrocatlælia Marathon var. Dulcie, Miltonia Bleuana, and others.

Large Silver Medals were awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a fine group of Cypripediums, with Læliocattleya Decia alba, and others, and to Messrs. Charlesworth & Co., Haywards Heath, for a fine representative group, largely consisting of hybrids.

Silver Medals were awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), and Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for groups of choice varieties.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers)—whose group included the beautiful Vanda cœrulea Wrigleyi, V. c. albens, and Cymbidium erythrostylum—H. Arthur, Esq., Blackburn; Mr. W. Shackleton, Great Horton, Bradford, and Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium var. rubrum, a self-coloured crimson flower of beautiful shape, with white edges, and O. Helius, a larger flower of similar colour, with large square flat lip, showing traces of Harryanum parentage, from Wm. Thompson, Esq.

Cattleya labiata vexillaria La Vierge, a large, well-shaped white flower, with purple markings on the lip, and Miltonia ashlandensis (M. v. superba × v. memoria G. D. Owen), a well-coloured flower, with a brilliant crimson base to the lip, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontioda Bradshawiæ var. Aurora, Cattleya Phrygia, C. labiata Athene, Cypripedium Estella, and C. San Actæus var. The Queen, from Wm. Thompson, Esq.

Odontoglossum percultum var. Brunette, from R. Ashworth Esq.

ORCHIDS AT HOLLYSPRING, ASCOT.

THE Orchid collection at Hollyspring is not a large one, but it comprises many rare species and a number of interesting hybrids. Three fine houses are devoted to Orchids, namely, East Indian, Cattleya, and Cool houses, and the majority of the plants grow vigorously, especially considering the great variety in each house. The collection was brought together by the

late Col. Sheppee, who died in March last, and Mrs. Sheppee, in reducing the collection, has made Kew the fine present of about 260 plants, including several of those mentioned in the following notes.

In the Cattleya house at Hollyspring a very rare Orchid may now be seen in flower, namely, Odontoglossum Londesboroughianum, a plant most difficult to flower as a rule, but here it grows remarkably well, in a basket suspended from the roof, and flowers freely. The stout, creeping rhizomes and ovoid pseudobulbs give the plant the appearance of an Oncidium, as also do the flowers, which are bright yellow, barred with brown. The flower-spikes are about two and a half feet long. The plant requires plenty of water whilst growing and drought when at rest, when it loses its leaves and becomes quite dormant.

In the same house several plants of Cypripedium thrive, notably C. Curtisii nobilior, which has very handsome foliage, C. Chamberlainianum, C. Rothschildianum, C. philippinense, C. Stonei, and others, also a good plant ot Brassia Lawrenceana. Cattleya Lueddemanniana is a very distinct member of the genus which is now flowering freely. Several plants of the fragrant Zygopetalum Mackayi are in bloom, also the rare *Z.* rostratum, which seems to require a rather warmer temperature than other species of the genus. There are also two nice plants of Arundina bambusifolia, both flowering freely, and resembling Sobralia in some respects, though much more slender in habit.

In the warm division many plants grow remarkably well. Cyrtopodium punctatum is grown in a compost consisting chiefly of loam. This plant is kept quite dry when resting, and the same applies to Peristeria elata. Several species of Angræcum and Vanda grow well in this house. Of the latter may be mentioned plants of V. Parishii, V. Bensonii, V. Denisoniana, and a beautiful plant of the rare V. Sanderiana, all exceptionally clean and healthy. Cœlogyne Dayana and plants of Ansellia africana also succeed here. There is quite a number of Dendrobiums, both species and hybrids, and these, as indeed nearly every genus in the collection, are exceedingly well grown by Mr. Swanborough, who has been in charge of the collection for about fourteen years. There are some good plants of Dendrobium Dalhousieanum, D. fimbriatum oculatum, and, probably the best of all, a good specimen of D. sanguinolentum album.

Many of the Cool house subjects are also grown well, among the Masdevallias being some good plants of the beautiful M. tovarensis, and M. Davisii, the latter having flowers of a rich yellow colour. Odontoglossum pulchellum is represented by a few good examples, and there is a good selection of the usual popular kinds. Several species of Anguloa, Lycaste, and many other plants are also growing quite happily in this interesting collection.

H. L. S.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON, F.R.H.S.

Now that the days are short and the cold weather is close upon us, it is obvious that less air can be given, but, to prevent stagnation of the atmosphere, endeavour to have the bottom ventilators open, if only for an hour or two, every day, and by the employment of a little extra heat in the pipes this should be possible, except in exceptionally severe weather. Endeavour to keep the temperatures as even as possible, regarding 50° Fahr. by day and 47° at night as the irreducible minimum. Cool house Orchids can be grown where the thermometer is kept between 40° and 45° Fahr. throughout the winter months, but one can better describe the plants as existing rather than flourishing in such a low temperature, and I am convinced that the nearer the temperature is kept to 50° Fahr. the sturdier will be the growth of the plants.

Continue to clean and tie up the flowers of the winter-flowering Cypripediums, and look over this class with special attention, as they are subject to attacks of thrip. Any that are over should be moved to the cooler end of the house, and kept rather on the dry side as regards watering. Damping down should only be done on fine days, and the plants themselves must not receive any overhead syringing, as any water remaining in the axils of the leaves or centre of new growths is liable to cause decay.

This is the best month to thoroughly clean the house, for, with the advent of the new year, other important details will have to be performed. The walls and staging of the house should be well washed with a strong solution of insecticide, and previous to rearranging the plants scrub every pot and dip each Orchid head downwards in a pail of weak tepid "Abol" solution, taking care not to allow the soil to become wet. Then sponge the plant with tepid rain water, remove any dead bulbs and leaves, and place it in its correct position. All Orchids in bud or which are completing their growth should be grouped together at the warmest end of the house, and so placed that they each get the maximum amount of light. For this reason the roof glass should be repeatedly washed inside and out, taking care to remove the green slimy matter which collects under the laps of the glass. This will enable any atmospheric moisture which collects to pass away, and prevent drip.

Fire heat can be to some extent economised, and assistance given in maintaining an even temperature, by lowering the blinds at night, or covering the roof glass with thick mats. These should, however, be removed early in the morning, so as not to prevent any possible light from reaching the plants.

The house should be well supplied with flowering plants at this season,

as, besides the countless number of Cypripediums from which selection can be made, there are many winter-flowering hybrid Odontoglossums now in commerce, together with the beautiful yellow Oncidiums and scarlet Odontiodas. Several useful winter-flowering Orchids are to be found in the genus Zygopetalum, and Z. crnitum, Mackayi, Perrenoudii, and Gottianum will now be throwing up their spikes of showy and long-lasting blossoms. These Orchids are vigorous growers, and when developing their spikes are greatly assisted by weak doses of liquid cow-manure every three or four days. They will also need a good supply of water until the blooms fade, when they should be kept somewhat drier for several weeks until ready for repotting.

Having this year given cultural directions for an amateur's Cool house, I propose during the following season to describe the monthly work necessary for the Cattleya house.

SUGGESTED ADDITION.

ZYGOCOLAX CHARLESWORTHII.—This pretty bigeneric hybrid can be procured at a reasonable price, and should be included in every Cool house, as it is free-flowering and quickly develops into a specimen capable of bearing several flower spikes. The blossoms are large, and are freely produced during the winter months, and last three to four weeks in perfection. The sepals and petals are rich chocolate brown on a white ground, the large lip being white with a bright purple blotch covering the greater part. It is a hybrid between Colax jugosus and Zygopetalum Perrenoudii, and of fairly recent raising. Two other members of this genus are also worthy of inclusion, and bloom about the same period namely :—

Zygocolax **Amesianus** (C. jugosus × Z. Mackayi).
Zygocolax **Veitchianus** (C. jugosus × Z. crinitum).

REVIEWS OF BOOKS.

Icones Orchidearum Austro-Africanarum extratropicarum, or figures, with descriptions, of extra-tropical South African Orchids. By Harry Bolus, F.L.S., Hon. D.Sc. (Cape), Vol. III., William Wesley & Son, 28, Essex Street, Strand, London.

The second volume of this important work appeared in 1911, shortly after the death of the Author, and was reviewed at pp. 197-198 of our nineteenth volume. It was then announced that a number of additional plates had been prepared, which it was hoped to publish. This volume marks the fulfilment of that promise, and has been prepared by Mrs. H. M. L. Bolus, formerly Miss Kensit, B.Sc., and assistant to Dr. Bolus, now Curator of the Bolus Herbarium at Cape Town. It contains one hundred plates, with text, and is arranged like the preceding volume.

Thirty-six of the plates originally appeared in the author's earlier *Orchids of the Cape Peninsula*, published in 1888, now out of print, and nine are by Mr. F. Bolus, a son of the author. It is intended to proceed with the drawing of African Orchids, and materials are invited from those who have an opportunity of collecting them. The work forms a valuable contribution to Orchidology.

Cattleyen und Lælien, Samenzucht und Pflege. Von Anton Hefka, k.u.k. Hof-Obergartner in Schonbrun-Wien. Mit einem Gelietwort von Anton Umlauft k.u.k. Hofgartendirector. Published by Wilhelm Frick, Vienna and Leipzig.

We have received a copy of this interesting cultural treatise on the Cattleya group, which should prove valuable to those conversant with German. It contains 83 pages and 20 photographic figures, with an Index. There are cultural directions, methods of hybridising and raising seedlings, with a sketch of the various species, and other supplementary matters, including a balance-sheet showing the satisfactory profit of 16 per cent. on capital invested in growing cut blooms for market.

ORCHID NOTES AND NEWS.

AN ordinary meeting of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 2nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

There will be no Show on December 16th, but the Orchid Committee will sit upstairs, and only plants submitted for Certificates will be received.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on December 18th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m.

We have much pleasure in announcing that the Calendar of Operations for next year will be contributed by Mr. T. W. Briscoe, late Orchid foreman to Messrs. James Veitch & Sons at Langley, in succession to Mr. John Seden, and previously in charge of the Orchid Department at Kew. Mr. Briscoe's long experience as hybridist in charge of Messrs. Veitch's important Orchid Department at Langley should be of value to the many readers of the *Orchid Review* who are engaged in raising Orchids from seed, a business which is every day gaining fresh adherents.

MR. GEORGE GORDON, V.M.H.—The *Gardeners' Magazine* for November 22nd announces the retirement of Mr. George Gordon, V.M.H., from the Editorship of that journal, a post which he has ably filled since the death of Mr. Shirley Hibberd, in 1890. The issue contains a portrait and an

interesting biographical sketch of the late Editor. His successor is Mr. Charles H. Curtis, who has long held the post of Assistant Editor.

R.H.S. SCIENTIFIC COMMITTEE.—The following reference to Orchids exhibited at meetings of the Committee are taken from the official report (continued from page 296) :—

November 4th :—

ORGANISMS IN AN ORCHID HOUSE.—Some curious seeds were referred to the Committee by the Orchid Committee, to whom they had been sent as insects which infested an Orchid house, without, however, any damage being traceable to them. They were the seeds of some plant, probably an Oxalis, which had been scattered by the plant over the house, and bore a distinct resemblance to minute beetles without legs.

PELORIC CATTLEYA.—Mr. G. Wilson showed a peloric form of Cattleya labiata alba, remarking that peloric forms of albinos were decidedly rare.

NOVEMBER 18th :—

CATASETUM MACROCARPUM.—Mr. R. A. Rolfe exhibited, from the collection of Mr. G. Rae Fraser, Letchmore Heath, Herts., an inflorescence of eight male flowers of Catasetum macrocarpum. Female flowers from the same plant have been before the Committee on two occasions, in October, 1910, and November, 1912. In the interval the plant has made two futile attempts to flower, but this year it has produced the male inflorescence above-mentioned. thus enabling the species to be certainly identified. Both inflorescences are being preserved at Kew, and the plant has now been presented to the collection, Mr. Fraser having another plant.

CYPRIPEDIUM INSIGNE WITH THREE LIPS.—Mr. Rolfe also exhibited, from the collection of Mr. Albert Pam, Wormley Bury, Broxbourne, a twin-flowered scape of Cypripedium insigne, in which the upper flower was normal, but the lower had three lips, as in the well-known variety Oddity. In this case the two lateral sepals are developed separately, and diverge laterally, the dorsal sepal is reduced in breadth, and the petals are metamorphosed into lips, which clasp the normal lip.

DENDROBIUM LEEANUM ATROPURPUREUM.—A fine form of Dendrobium Leeanum was exhibited at the R.H.S. meeting held on November 18th last by Messrs. Flory & Black, Orchid Nursery, Langley. It agrees well with D. Leeanum atropurpureum, which received an Award of Merit from the R.H.S. in October, 1900, when shown by the late Sir Frederick Wigan (*O.R.*, viii. p. 351), and which differs from the original form in its very dark purple lip. D. Leeanum appears in importations of D. Phalænopsis, and is believed to be a natural hybrid between that species and D. superbiens. Its history was given at p. 334 of our third volume.—R.A.R.

THE ORCHID REVIEW.—The present issue completes the twenty-first volume of the *Orchid Review*, and the succeeding one will mark its coming of age. We believe the record of the work has been one of sustained progress, and the numerous congratulations and good wishes for the future which reached us on the completion of the twentieth volume afford a gratifying assurance that the policy steadily followed throughout has been widely appreciated. The *Orchid Review* has witnessed and recorded an enormous advance in the cultivation, and especially in the hybridisation, of Orchids, and the present issue announces what we believe will mark another great development. The work will celebrate its twenty-first birthday in a new dress, with improvements which we will not anticipate. We rely on our numerous friends for their continued co-operation and support in the future.

We regret that the promised Index to the first twenty volumes has not yet appeared ; the matter, however, has been selected, and we hope to report progress shortly.

ORCHID PORTRAITS.

ANGRÆCUM RECURVUM.—*Gard. Chron.*, 1913, ii. p. 374, fig. 132 ; *Gard. Mag.*, 1913, p. 899, with fig.

CATTLEYA GRANIRIS.—*Gard. Mag.*, 1913, p. 841, with fig.

CATTLEYA LABIATA.—*Journ. Hort.*, 1913, ii. p. 429, with fig.

CYPRIPEDIUM OLYMPUS.—*Gard. Mag.*, 1913, p, 865, with fig. ; *Garden*, 1913, p. 576, with fig.

HABENARIA IANTHA.—*Gard. Chron.*, 1913, ii. p. 300, fig. 110.

PHALÆNOPSIS LUEDDEMANNIANA.—*Horticulture*, 1913, pp. 557, 565, with fig.

SACCOLABIUM GLOMERATUM.—*Gard. Chron.*, 1913, ii. p. 317, fig. 116.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

G.L.—The Orchids sent for name are Pleurothallis hians, Lindl., Oncidium nubigenum, Lindl., and Sigmatostalix radicans, Rchb. f.

F.D.—Catasetum macrocarpum, Rich.

E.R.—This hybrid between Cypripedium Sallieri Hyeanum and C. Thompsonii is a form of C. illustre. It is good in shape and colour.

Th. P.—Many thanks for the records, which shall be duly incorporated. We hope to receive others from time to time.

J.H.B.—Cypripedium Parishii, Rchb. f.

C.P.—We will ascertain whether a copy can be obtained. It is a large work.

Photographs received, with thanks.—F.D.

Books received.—Bolus, Orchids of South Africa ; Hefka, Cattleyen and Lælien.

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